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TEST-20

Test Booklet Series

C

GENERAL STUDIES (P) 2022 – Test – 3489

Time Allowed: Two Hours

Maximum Marks: 200

REVISION TEST 2

Geography (I) + Geography (II) + Ecology & Environment (Basic Concepts) +

Ecology and Environment (Acts, Policies and Mitigations Strategies)

+ Current Affairs (Sept. Nov. 2021)

2022

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1. Which of the following is ***not*** known to be released into the atmosphere due to the burning of plastics?

(a) Dioxins
(b) Furans
(c) Radon
(d) Polychlorinated Biphenyls

2. With reference to spring formations, consider the following statements:

1. It occurs in well-jointed rocks.
2. It does not occur in Karst regions.
3. It occurs in areas where permeable and impermeable rocks alternate.

Which of the statements given above are correct?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

3. Which of the statements given below is correct regarding the cotton industry?

(a) Cotton is a non-weight losing raw material.
(b) Cotton industries are mostly market-based industries.
(c) Maharashtra and Gujarat are leading producers of cotton.
(d) All the statements (a), (b) and (c) are correct.

4. With reference to the phenomena of Eutrophication, consider the following statements:

1. Eutrophication is associated with increased levels of oxygen in a water body.
2. Increased flow of nutrients to a water body decreases the rate of Eutrophication.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

5. Consider the following statements regarding Himalayan mountains:

1. Himalayan mountains are tectonic in origin.
2. They are mostly made up of unconsolidated and semi-consolidated deposits.
3. Unlike the Peninsular block these are rigid and stable in their geological structure.

Which of the statements given above is/are correct?

(a) 1 and 2 only
(b) 2 only
(c) 1 and 3 only
(d) 1, 2 and 3

6. Which of the following statements about Water and Climate Coalition (WCC) is/are ***not*** correct?

1. It is formed to speed up the progress towards the water-related sustainable development goal-6 (SDG-6).
2. Its members are from scientific organizations, private sector, NGOs, UN Organizations, countries and the civil society.
3. It is headed by World Meteorological Organization (WMO).

Select the correct answer using the code given below.

(a) 1 only
(b) 2 only
(c) 3 only
(d) None

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7. Which of the following statements is/are correct with reference to MusQan initiative?

1. It is an initiative of the Ministry of Home Affairs (MHA).
2. The initiative aims to trace and rescue the missing children and reunite them with their families.

Select the correct answer using the code given below.

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

8. Barasingha, or swamp deer, is deer species found in many parts of the Indian subcontinent. The swamp deer differs from all other Indian deer species in that the antlers carry more than three tines. Barashingha is the state animal of which of the following states?

(a) Uttar Pradesh and Madhya Pradesh
(b) Madhya Pradesh and Maharashtra
(c) Bihar and Uttar Pradesh
(d) Uttar Pradesh and Uttarakhand

9. Recently, four more wetlands from India get recognition as Ramsar sites. In this context, consider the following pairs:

Wetland		***State***
1. Bhindawas Wildlife Sanctuary	:	Rajasthan
2. Sultanpur National Park	:	Haryana
3. Thol Lake Wildlife Sanctuary	:	Maharashtra
4. Wadhvana Wetland	:	Gujarat

Which of the pairs given above are correctly matched?

(a) 1 and 3 only
(b) 2 and 4 only
(c) 2 and 3 only
(d) 1 and 4 only

10. In the context of different tribes residing in different regions of the world, consider the following pairs:

Tribes		***Region***
1. Maasai	:	Nigeria
2. Hausa	:	Malaysia
3. Bindibu	:	Australia

Which of the pairs given above is/are correctly matched?

(a) 1 and 3 only
(b) 2 only
(c) 3 only
(d) None

11. Which of the following statements is correct in the context of the Lakshadweep Islands?

(a) The entire island group is built of coral deposits.
(b) Narcondam is a small volcanic island in Lakshadweep group.
(c) Saddle peak is the highest peak in Lakshadweep islands.
(d) Eleven degree channel separates Lakshadweep from Maldives.

12. Which of the following is ***not*** an invasive species?

(a) Tomato Leaf Miner (Tuta absoluta)
(b) Water hyacinth (Eichhornia)
(c) Chlorophytum tuberosum (Musli)
(d) Carrot Grass (Parthenium)

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13. With reference to the horizontal heating of atmosphere, consider the following statements:

1. It causes most of the diurnal variation in daily weather in middle latitudes.
2. The local winds in northern India during summer season called 'loo' is the outcome of horizontal heating of atmosphere.
3. The horizontal transfer of energy is confined only to the troposphere.

Which of the statements given above are correct?

(a) 1 and 2 only
(b) 1 and 3 only
(c) 2 and 3 only
(d) 1, 2 and 3

14. Arrange the following Ramsar Sites in India from North to South:

1. Renuka Lake
2. Sambhar Lake
3. Bhoj wetland
4. Tsomoriri

Select the correct answer using the code given below.

(a) 2-4-3-1
(b) 4-2-1-3
(c) 4-1-2-3
(d) 1-2-3-4

15. With reference to Bio-Medical Waste Management Rules, 1998 consider the following statements:

1. They are under the Environment (Protection) Act, 1986.
2. They are notified by Ministry of Environment, Forest and Climate Change.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 and 2

16. Consider the following pairs :

City		***Climatic Type***
1. Hobart	:	British Type
2. Sudan	:	China Type
3. Rome	:	Mediterranean Type

Which of the pairs given above are correctly matched?

(a) 1 and 2 only
(b) 1 and 3 only
(c) 2 and 3 only
(d) 1, 2 and 3

17. An estimated 60% of known infectious diseases and up to 75% of new or emerging infectious diseases are zoonotic in origin. In this context, consider the following statements regarding Zoonotic diseases:

1. Zoonotic pathogens can be bacterial, viral, parasitic, or fungal.
2. They spread only through bodily fluids.
3. Japanese encephalitis is an example of zoonotic disease.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) 1 and 3 only
(d) 1, 2 and 3

18. Consider the following statements in the context of the Living Planet Index:

1. It measures the state of the global biodiversity based on the population trends of vertebrates and invertebrates.
2. The index shows the number of species lost and the extinction also.
3. It is an initiative of the World Wildlife Fund and the International Union for Conservation of Nature.

Which of the following statements is/are correct?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1, 2 and 3
(d) None

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19. With reference to Longitudes and Standard Time Zones, consider the following statements:

1. The entire world is divided into fifteen time zones.
2. All countries have adopted their standard time from the central meridian of their countries.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

20. Consider the following statements with reference to Green India Mission:

1. It aims to enhance forest cover and forest-based livelihood income of households.
2. It is a mission under the National Action Plan on Climate Change (NAPCC).
3. It is implemented on both public as well as private lands.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 and 3 only
(c) 3 only
(d) 1, 2 and 3

21. Consider the following statements with reference to Global Hunger Index:

1. It is released by United Nations Development Programme (UNDP).
2. India has been consistently slipping in the index for the last 5 years.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

22. With reference to La Nina, consider the following statements:

1. La Nina event is generally associated with increased rainfall in southern Africa.
2. La Nina event is preceded by a buildup of cooler subsurface waters in the eastern tropical Pacific.
3. During La Nina the trade winds are weakened.

Which of the statements given above is/are correct?

(a) 1 only
(b) 1 and 2 only
(c) 2 and 3 only
(d) 1, 2 and 3

23. The reserve is one of the latest tiger reserves to be included in the list of tiger reserves under Project Tiger. The declaration of the area as a Tiger reserve would help in the protection and conservation of the Vagai river along with wildlife conservation. The area of the Tiger Reserve has a mountain range famous for tourism known as the High Wavy Mountains.

Identify the Tiger Reserve from the passage given above.

(a) Bandipur Tiger Reserve
(b) Kamlang Tiger Reserve
(c) Srivilliputhur-Meghamalai Tiger Reserve
(d) Similipal Tiger Reserve

24. Consider the following statements with reference to the Stockholm Convention:

1. It is a global convention that comes under United Nations Environment Programme (UNEP).
2. Global Environment Facility (GEF) serves as its financial mechanism.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

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25. Consider the following statements with respect to wetlands:

1. Wetlands can be notified by the Centre, State, and UT Administration.
2. States and UTs are responsible for the management of wetlands and implementation of the National wetlands conservation program.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

26. Aestivation or summer sleep is commonly practiced by which of the following organisms?

1. Snakes
2. Bear
3. Crocodiles
4. Frogs

Select the correct answer using the code given below.

(a) 1 and 4 only
(b) 2 only
(c) 1, 2 and 3 only
(d) 3 and 4 only

27. Consider the following statements with reference to National Adaptation Fund for Climate Change:

1. It is a central sector scheme implemented by NABARD
2. It provides funds for climate adaptation in the agriculture and forestry sector.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

28. Consider the following pairs:

Historical place		***Well-known for***
1. St. Angelo's Fort	:	triangular laterite structure
2. Ranghar	:	oval pavilion
3. Sher Shah Suri tomb	:	octagonal plan

Which of the pairs given above is/are correctly matched?

(a) 1 and 3 only
(b) 1 and 2 only
(c) 3 only
(d) 1, 2 and 3

29. Consider the following statements with reference to the '30 by 30' Agenda:

1. It is adopted by G-20 countries, conceptualized at Convention on Biological Diversity (COP15).
2. It recognizes the importance of protecting 30% of the planet by 2030.
3. High Ambition Coalition for Nature and People is pushing for the inclusion of 30x30 in the Post-2020 Global Biodiversity Framework.

Which of the statements given above are correct?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

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30. Which of the following is/are the main objectives of UNESCO's Man and Biosphere programme?

1. To identify and assess the changes in the biosphere resulting from human and natural activities.
2. To study and compare the dynamic interrelationships between natural ecosystems and socio-economic processes.
3. To promote the exchange and transfer of knowledge on environmental problems and solutions.

Select the correct answer using the code given below.

(a) 1, 2 and 3
(b) 1 and 2 only
(c) 1 only
(d) 3 only

31. Which of the following functions is/are performed by the Central Zoo Authority (CZA)?

1. To recognize zoos and specify minimum standards for housing and veterinary care of the animals kept in zoos.
2. To identify endangered species of wild animals for purposes of captive breeding.
3. To advise the Government on matters relating to the medical care and attention which may be provided in animal hospitals.

Select the correct answer using the code given below.

(a) 1 only
(b) 1 and 2 only
(c) 2 and 3 only
(d) 1, 2 and 3

32. Which of the following are the advantages of Aerial Seeding?

1. It eliminates the need for ploughing and digging holes in the soil.
2. It is able to target inaccessible areas.
3. It protects the seeds from birds, ants and rats.

Select the correct answer using the code given below.

(a) 1 and 2 only
(b) 1 and 3 only
(c) 2 and 3 only
(d) 1, 2 and 3

33. With reference to the species diversity, consider the following statements:

1. A diversity index of zero represents infinite diversity.
2. Among animals, crustaceans and mollusks are the most species-rich taxonomic group.
3. The Gamma diversity is a measure of the overall diversity of the different ecosystems within a region.

Which of the statements given above are correct?

(a) 1, 2 and 3
(b) 1 and 3 only
(c) 2 and 3 only
(d) 1 and 2 only

34. Which of the following living organisms are extinct?

1. Tasmanian Tiger
2. Dodo
3. Stellar's sea cow
4. Madarin Duck

Select the correct answer using the code given below.

(a) 1 and 2 only
(b) 1, 2 and 3 only
(c) 2, 3 and 4 only
(d) 3 and 4 only

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35. Consider the following statements regarding warm water and cold-water coral reefs:

1. The Great Barrier Reef is a warm water shallow reef.
2. Cold-water corals have symbiotic algae living in their polyps.
3. Cold-water corals are not found in tropical regions.

Which of the statements given above is/are correct?

(a) 1 and 3 only
(b) 2 and 3 only
(c) 1 only
(d) 1, 2 and 3

36. Which of the following countries lies entirely to the north of Equator?

(a) Tanzania
(b) Kenya
(c) Venezuela
(d) Ecuador

37. Which of the following is ***not*** a member of East Asia Summit (EAS)?

(a) United States of America
(b) China
(c) Russia
(d) United Kingdom

38. Which of the following are the major sources of benzene emissions?

1. Animal excreta
2. Automobile exhaust
3. Cigarette smoke
4. Petrol refuelling stations

Select the correct answer using the code given below.

(a) 1 and 4 only
(b) 2 and 3 only
(c) 2, 3 and 4 only
(d) 1, 2, 3 and 4

39. Which of the following factors contribute to 'Population Ageing'?

1. Declining fertility rates
2. Increase in life expectancy
3. Increase in the proportion of the working-age population.

Select the correct answer using the code given below.

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

40. Consider the following Tiger Reserves in India:

1. Udanti-Sitanadi Tiger Reserve
2. Bhadra Tiger Reserve
3. Kanha Tiger Reserve
4. Pench Tiger Reserve

Which of the above mentioned Tiger reserves of India lies below the Tropic of Cancer?

(a) 1 and 2 only
(b) 2, 3 and 4 only
(c) 1, 3 and 4 only
(d) 1, 2, 3 and 4

41. The air services between 10-35 degree South latitudes is very limited because:

1. Low density of population.
2. High continentality, supporting other modes of land transport.
3. Low economic development.

Which of the statements given above is/are correct?

(a) 1 and 2 only
(b) 1 and 3 only
(c) 3 only
(d) 2 and 3 only

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42. She participated in the activities of 'London India Society and later started a periodical called 'Madan's Talwar. She founded Paris India Society to further the cause of India and developed close links with the Socialist Party and Russian socialists in exile in Paris. She advocated for the women rights.

Identify the personality from the above passage.

(a) Annie Besant
(b) Matangini Hazara
(c) Margaret Nobel
(d) Madam Bhikaji Cama

43. It is the largest river system of Rajasthan, west of Aravali. It originates near Pushkar in two branches, i.e. the Saraswati and the Sagarmati, which join with each other at Govindgarh. It flows towards the west till Telwara and then takes a southwest direction to join the Rann of Kuchchh The entire river system is ephemeral.

Which of the following rivers is described in the above passage?

(a) Chambal
(b) Luni
(c) Mahi
(d) Shetruniji

44. Consider the following statements regarding Himalayan brown bear:

1. The best place to see a Himalayan brown bear in India is the Great Himalayan National park.
2. Himalayan brown bear is the only species of bear that is herbivorous.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

45. Consider the following statement about Rhino:

1. Two species of rhino i.e. Great one-horned rhino and black rhino are found in India.
2. They are listed as Endangered in IUCN red list.
3. In India, Rhino is found only in the North-Eastern states of Assam and Meghalaya.

Which of the statements given above is/are ***not*** correct?

(a) 1 only
(b) 2 and 3 only
(c) 1, 2 and 3
(d) 3 only

46. Consider the following statements with reference to Cartagena Biosafety Protocol:

1. It is aimed at fair and equitable sharing of benefits arising from the utilization of genetic resources.
2. It contains provisions to check the Agreement on Trade-Related Aspects of Intellectual Property Rights of the World Trade Organisation.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

47. Consider the following statements regarding GloLitter Partnerships Project:

1. It is an initiative of the United Nations Environment Programme (UNEP).
2. It aims to reduce marine litter, especially plastic litter from all the sources.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

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48. Consider the following pairs:

Elephant Reserves		*States*
1. Dihing-Patkai	:	Assam
2. Badalkhol Tamorpingla	:	Chhattisgarh
3. Rayala	:	West Bengal

Which of the pairs given above is/are correctly matched?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1 only

49. Which of the following are the bordering countries of the Red Sea?

1. Djibouti
2. Eritrea
3. Egypt
4. Jordan

Select the correct answer using the code given below.

(a) 1, 2 and 3 only
(b) 1, 2 and 4 only
(c) 1 and 3 only
(d) 2, 3 and 4 only

50. Which of the following are Jyotirlingas in India?

1. Somnath
2. Mallikarjun
3. Omkareshwar
4. Badrinath

Select the correct answer using the code given below:

(a) 1 and 4 only
(b) 2 and 3 only
(c) 1 and 4 only
(d) 1, 2 and 3 only

51. With reference to the Convention on Migratory Species, consider the following statements:

1. For the purposes of the Convention, a migratory species must cross at least one international boundary in a cyclical manner.
2. Its protection is limited to the migratory species that are endangered.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

52. Tombolo is associated with which of the following landforms?

(a) Coastal landforms
(b) Karst topography
(c) Glacier landforms
(d) None of the above

53. 'Johnson Line' is associated with:

(a) Line dividing India and Pakistan at Sir Creek
(b) Line denoting Aksai Chin as part of India
(c) Line showing boundary between Pakistan and Afghanistan
(d) Line representing boundary between India and Bhutan

54. Which among the following are the reasons for unequal distribution of temperature across the surface of ocean?

1. Distance from the Equator
2. Distance from the land
3. Prevailing winds
4. Oceanic Currents

Select the correct answer using the code given below.

(a) 1 and 3 only
(b) 2 and 4 only
(c) 1, 3 and 4 only
(d) 1, 2, 3 and 4

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55. Which of the following factors influence the ocean currents?

1. Temperature
2. Ocean salinity
3. Coriolis force
4. Gravitational force
5. Proximity to Land

Select the correct answer using the code given below.

(a) 1, 3 and 5 only
(b) 1, 2 and 3 only
(c) 2 and 4 only
(d) 1, 2, 3, 4 and 5

56. Which of the following conditions are necessary for the development of Karst topography?

1. Thick massive soluble rock
2. Jointed bedrock
3. Relief
4. Moderate to heavy rainfall

Select the correct answer using the code given below.

(a) 1 and 4 only
(b) 1, 3 and 4 only
(c) 2 and 3 only
(d) 1, 2, 3 and 4

57. Starting from the origin till the mouth of the river, which of the following rivers is the longest?

(a) Indus
(b) Ganga
(c) Brahmaputra
(d) Godavari

58. Consider the following pairs of Discontinuities and corresponding Earth layers:

Discontinuity		***Earth Layer***
1. Gutenberg discontinuity	:	Inner Core and Outer Core
2. Mohorovicic discontinuity	:	Crust and mantle
3. Lehman discontinuity	:	Mantle and Core

Which of the pairs given above is/are correctly matched?

(a) 2 only
(b) 1 and 2 only
(c) 1 and 3 only
(d) 1, 2 and 3

59. With reference to the Temperate Continental or Steppe Climate consider the following statements:

1. Annual range of temperature of this climatic region is extreme in the northern hemisphere.
2. Vegetation here consists of very few trees.
3. Grasslands of this climatic region in Australia are called Velds.

Which of the statements given above is/are correct?

(a) 1 only
(b) 1 and 2 only
(c) 2 and 3 only
(d) 1, 2 and 3

60. What are the special conditions under which the Chief Wildlife Warden can permit hunting of Schedule I animals?

1. If the animal is dangerous to human life.
2. If the animal is disabled or injured one.
3. If the animal is diseased which is beyond the recovery stage.

Select the correct answer using the code given below.

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

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61. With reference to Northern Plains, consider the following statements:

1. The Bhangar is the older alluvium along the river beds.
2. Khadar is less fertile alluvium on the low-lying floodplain.
3. Terai is an ill-drained, marshy and swampy forested belt to the south of Bhabar.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

62. Consider the following:

1. The sun, the moon and the earth are in a straight line.
2. The moon is closest to the Earth.
3. The tidal range is greater than normal.

The above given conditions defines which of the following tides?

(a) Apogean Spring tides
(b) Perihelion Spring tides
(c) Perigean Spring tides
(d) Aphelion Spring tides

63. Which of the following are the benefits of Mulching?

1. It improves soil conservation.
2. It decreases the soil temperature.
3. It reduces soil salinity.
4. It reduces weeds.

Select the correct answer using the code given below.

(a) 1 and 2 only
(b) 2, 3 and 4 only
(c) 1, 3 and 4 only
(d) 1, 2, 3 and 4

64. Which of the following Global Climate finance architecture are administered by the World bank?

1. Strategic Climate fund
2. Clean Technology Fund
3. Global Climate Change Alliance plus
4. Global Energy Efficiency and Renewable Energy Fund

Select the correct answer using the code given below.

(a) 1 and 3 only
(b) 1 and 2 only
(c) 3 and 4 only
(d) 1, 2 and 4 only

65. REDD+ is a framework (or mechanism) to guide activities in the sustainable management of forests and reduce emissions. Its objective is to create a financial value for the carbon stored in forests by offering incentives for developing countries REDD+ has been developed by

(a) IUCN (International Union for Conservation of Nature)
(b) Parties to the UNFCCC
(c) WWF and IUCN
(d) OECD nations

66. With reference to the peninsular rivers of India, consider the following pairs:

River name		***Source of origin***
1. Manjira	:	Balaghat hills
2. Bhima	:	Bhimashankar hills
3. Bhavani	:	Nilgiri hills

Which of the pairs given above are correctly matched?

(a) 1 and 2 only
(b) 1, 2 and 3
(c) 1 and 3 only
(d) 2 and 3 only

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67. Consider the following statements regarding National Wildlife Action Plan (2017-2031):

1. It is India's second wildlife action plan.
2. For the first time, it recognizes the impact of climate change on wildlife.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

68. Which one of the following terms best describes the 'population interaction between different species in which one organism is destroyed while the other organism is unaffected?

(a) Amensalism
(b) Commensalism
(c) Parasitism
(d) Mutualism

69. Construction of large dams causes significant damage to the natural ecosystem. In this context, large dams can contribute to which of the following changes in the ecosystem?

1. Extinction of aquatic species
2. Disappearance of birds in floodplains
3. Erosion of coastal deltas

Select the correct answer using the code given below.

(a) 1, 2 and 3
(b) 2 and 3 only
(c) 1 and 2 only
(d) 1 and 3 only

70. Winter monsoons do not cause rainfall in most parts of India because:

1. They do not have adequate humidity to cause rainfall.
2. Anticyclonic circulation on land reduces the possibility of rainfall.

Select the correct answer using the code given below.

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

71. Consider the following pairs:

Flower	***Cultivating state/UT***
1. Lavender	Gujarat
2. Tulip	Jammu and Kashmir
3. Orchid	Arunachal Pradesh

Which of the pairs given above is/are correctly matched?

(a) 2 and 3 only
(b) 3 only
(c) 1 and 2 only
(d) 1, 2 and 3

72. Consider the following statements:

1. The Western Ghats are comparatively higher in elevation to the Eastern Ghats.
2. The Western Ghats are less continuous than the Eastern Ghats.
3. The average height of Western Ghats increases from north to south.

Which of the statements given above are correct?

(a) 1, 2 and 3
(b) 1 and 2 only
(c) 1 and 3 only
(d) 2 and 3 only

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73. In the context of carbon sequestration, consider the following statements:

1. The Hydrodynamic Trapping of Carbon dioxide aims to store carbon dioxide for the long term, wherein it gets trapped under low permeability cap rock.
2. Depleted oil reserves and unmineable mines are natural sinks used for carbon sequestration.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

74. Consider the following:

When the rocks of the earth's surface area exposed to denudational agents, they are broken up into various sizes of fragments. Such fragments are transported by different exogenous agencies and deposited. These deposits through compaction turn into rocks. It is a process of porosity destruction through compaction and fermentation.

Which of the following process of rock formation is being described in the passage given above?

(a) Recrystallisation
(b) Foliation
(c) Lithification
(d) Exfoliation

75. Consider the following statements with respect to the Meenakari craft:

1. It is the art of decorating a metal and ceramic surfaces by fusing mineral substances on it.
2. Banaras Gulabi Meenakari Craft has a geographical indicator (GI) tag.
3. Haryana and Rajasthan are major centres of this art form.

Which of the statements given above is/are correct?

(a) 2 and 3 only
(b) 1 only
(c) 1, 2 and 3
(d) 1 and 2 only

76. Consider the following pairs :

Place in news		***Country***
1. Addu Atoll	:	Maldives
2. Al-Aqsa Mosque	:	Iran
3. Mount Nyiragongo	:	Kenya

Which of the pairs given above is/are correctly matched?

(a) 1 only
(b) 1 and 2 only
(c) 2 and 3 only
(d) 1 and 3 only

77. Consider the following statements:

1. All marine mammals found in Indian waters belong to the order cetacea.
2. All species of marine mammals found along the Indian coast are protected under the Wildlife Protection Act, 1972.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

78. Consider the following pairs:

GI Products		***State***
1. Sojar Mehndi	:	Rajasthan
2. Chyura Oil	:	Himachal Pradesh
3. Sirarakhong Hathei Chili	:	Nagaland
4. Judima	:	Assam

Which of the pairs given above is/are correctly matched?

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 4 only
(d) 2, 3 and 4 only

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79. Consider the following statements:

1. Long and Sunny summers help in easy ripening of fruits.
2. Fruit trees have long roots enabling them to survive the dry season.
3. Thick leathery bark of many fruit trees prevents excessive transpiration.

Which of the statements given above is/are the favorable factors for Orchard farming in the Mediterranean region?

(a) 1 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

80. Consider the following statements with reference to the meandering of rivers:

1. Meandering of rivers is a result of both erosional and depositional work of water.
2. Meandering of Peninsular rivers in India is more than Himalayan rivers.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

81. Consider the following statements with reference to the National Green Tribunal (NGT):

1. It is not bound by the procedure under the Code of Civil Procedure and is guided by principles of natural justice.
2. The Tribunal is mandated to make and endeavor for disposal of applications or appeals finally within 1 month of the filing of the same.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

82. Which of the following regions are major industrial regions in India?

1. Mumbai-Pune Region
2. Vishakhapatnam-Guntur Region
3. Chhotanagpur Region
4. Ambala-Amritsar Region

Select the correct answer using the code given below.

(a) 1, 2 and 3 only
(b) 1 and 3 only
(c) 2 and 4 only
(d) 1, 2, 3 and 4

83. Which of the following geological events have influenced the present drainage systems of Peninsular India?

1. Subsidence of the western flank of the Peninsula
2. Upheaval of the Himalayas
3. Slight tilting of the Peninsular block from northwest to the southeastern direction

Select the correct answer using the code given below.

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

84. With reference to the Oceanic salinity, consider the following statements:

1. The zone in water where salinity increases sharply with depth is known as Isohaline.
2. The maximum amount of salt in oceans is common salt.
3. The region around the equator is more saline than the horse latitudes.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 and 3 only
(c) 1, 2 and 3
(d) 2 only

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85. This sanctuary is India's one of the most famous wildlife sanctuaries and is rightly known as the "green paradise" of India. It is located in the outer Himalayas and the river Kali forms one of its boundaries. It also contains famous peaks like Panchchuli, Neodhura and has famous passes like Lumpiya Lekh and Mankshang Lekh. It has been set up primarily with the objective of conserving the musk deer and its habitat.

Which one of the following wildlife sanctuary is being referred to in the above passage?

(a) Bhitarkanika wildlife sanctuary
(b) Askot wildlife sanctuary
(c) Chinnar wildlife sanctuary
(d) Pangot and kilbury wildlife sanctuary

86. Which of the following are the characteristics of oligotrophic lakes?

1. Low nutrient content
2. High water quality drinking
3. High algal growth

Select the correct answer using the code given below.

(a) 1 and 2 only
(b) 1 and 3 only
(c) 2 and 3 only
(d) 1, 2 and 3

87. Consider the following statements:

1. The maximum percentage of surface water in India is utilized by the industrial sector.
2. The maximum percentage of groundwater in India is utilized by the agriculture sector.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

88. The term "Cornwall Consensus" is associated with:

(a) World Bank (WB)
(b) G-7
(c) World Trade Organization (WTO)
(d) United Nation Environment Programme (UNEP)

89. Which of the following is/are the components of Bharatmala Pariyojana?

1. Development of economic corridors.
2. Development of border and international connectivity roads.
3. Development of port connectivity roads.
4. Development of expressways

Select the correct answer using the code given below.

(a) 1 and 3 only
(b) 2 and 4 only
(c) 1, 2, 3 and 4
(d) 1, 2 and 3 only

90. Which of the following features is common to the places Ratnagiri, Mayurbhanj and Durg?

(a) Inland riverine ports
(b) Aluminium deposits
(c) Iron deposits
(d) Thermal power plants

91. 'Yokohama Strategy and Plan of Action for a Safer World' is primarily related to:

(a) Natural Disasters
(b) Nuclear Weapon Technology
(c) Biodiversity Conservation
(d) Space Technologies

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92. Consider the following statements with respect to International Energy Association (IEA):

1. It helps in ensuring energy security, tracking clean energy transitions, collecting data and providing training around the world.
2. It is an autonomous agency set up by member countries of the OECD.
3. India is a member country of IAE.

Which of the statements given above is/are correct?

(a) 1 and 2 only
(b) 3 only
(c) 2 and 3 only
(d) 1, 2 and 3

93. With reference to the circulation of water in the Atlantic Ocean, consider the following statements:

1. The Gulf stream is deflected eastwards under the influence of westerlies to reach Europe as North Atlantic Drift.
2. The Sargasso Sea is formed within the area engulfed by the Brazilian current and the Benguela current.

Which of the statements given above is/are correct?

(a) 1 only
(b) 2 only
(c) Both 1 and 2
(d) Neither 1 nor 2

94. Which of the following weather phenomenon are observed during the winter season in India?

1. Development of high pressure in the region lying to the north of the Himalayas.
2. The inflow of dry surface winds from Central Asia.
3. The onset of an easterly jet stream over peninsular India.

Select the correct answer using the code given below.

(a) 1 and 2 only
(b) 2 and 3 only
(c) 1 and 3 only
(d) 1, 2 and 3

95. The term "Regulatory Sandbox' is associated with which of the following?

(a) Indian Coast Guard
(b) Reserve Bank of India
(c) National Building Code of India
(d) Inland Waterways Authority of India

96. Consider the following statements with reference to International Solar Alliance:

1. Its membership is open to countries lying within the Tropics only.
2. It was launched by India and France.
3. It is headquartered at Gurugram.

Which of the statements given above is/are correct?

(a) 1 and 2 only
(b) 2 only
(c) 2 and 3 only
(d) 1, 2 and 3

97. Which of the following sectors are included in the Production Linked Incentive (PLI) scheme?

1. Defence ammunition manufacturing
2. Automobiles and auto components
3. High-Efficiency Solar PV Modules
4. White goods (ACs and LEDs)
5. Manufacturing of Medical Devices

Select the correct answer using the code given below.

(a) 1, 2, 4 and 5 only
(b) 2, 3 and 5 only
(c) 2, 3, 4 and 5 only
(d) 1, 3 and 4 only

98. Consider the following statements regarding black soil:

1. It is widespread in northern and eastern plains.
2. It is generally clayey, deep and impermeable.
3. They are also known as regur soil.

Which of the statements given above is/are correct?

(a) 1 and 3 only
(b) 2 and 3 only
(c) 3 only
(d) 2 only

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99. These are small but violent tropical and sub-tropical cyclones in which spiralling wind descends at a very high speed with low pressure at the centre. It appears as a dark funnel cloud. When appear over the sea, they are called as water spouts. These occur mostly in the Mississippi basin of the U.S.A.

The above passage refers to which of the following phenomenon?

(a) Storm Surge
(b) Sandstorms
(c) Tornadoes
(d) Willy Willies

100. Which of the following organizations is associated with "Uniting for Consensus" group?

(a) International Fund for Agricultural Development (IFAD)
(b) United Nations Security Council (UNSC)
(c) Organization of Economic Co-operation and Development (OECD)
(d) World Trade Organization (WTO)

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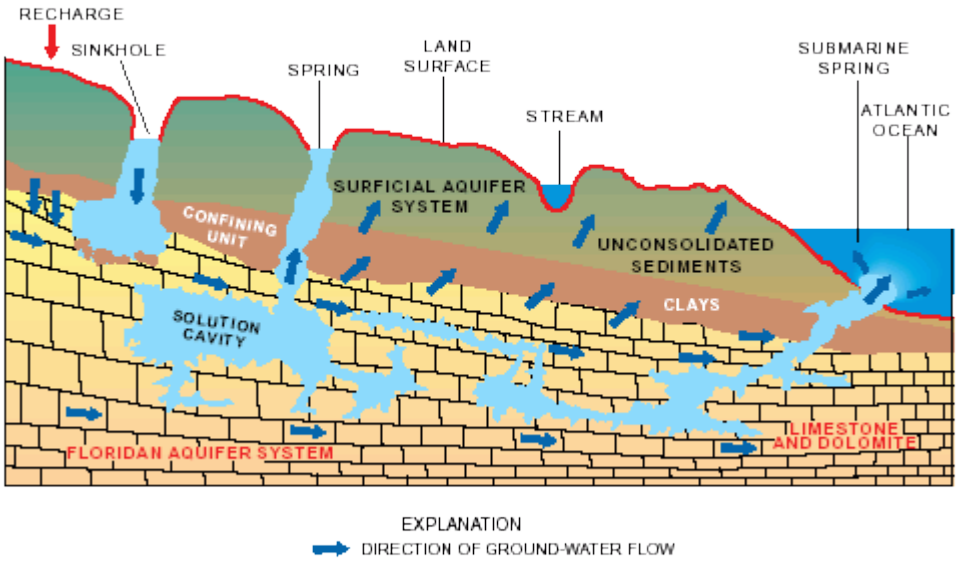
ANSWERS & EXPLANATIONS
GENERAL STUDIES (P) TEST – 3489 (2022)

Q 1.C

- Incineration (burning) of plastic waste in an open field is a major source of air pollution. Most of the time, the municipal solid waste containing about 12% of plastics is burnt, releasing toxic gases like Dioxins, Furans, Mercury, and Polychlorinated Biphenyls into the atmosphere. Radon is not known to be released due to plastic burning. **Hence option (c) is the correct answer.**
- **Dioxin** is a general term that describes a group of hundreds of chemicals that are highly persistent in the environment. The most toxic compound is 2,3,7,8-tetrachlorodibenzo-p-dioxin or TCDD. Dioxin is formed as an unintentional by-product of many industrial processes involving chlorine such as waste incineration, chemical and pesticide manufacturing, and pulp and paper bleaching. Dioxin was the primary toxic component of Agent Orange (Agent Orange is a herbicide and defoliant chemical, one of the "tactical use" Rainbow Herbicides. It is widely known for its use by the U.S. military as part of its chemical warfare program, Operation Ranch Hand, during the Vietnam War from 1961 to 1971.)
- **Furan** is a heterocyclic organic compound, it is a colorless, flammable, highly volatile liquid with a boiling point close to room temperature. It is soluble in common organic solvents, including alcohol, ether, and acetone, and is slightly soluble in water.
- **Radon** is a chemical element with the symbol Rn and atomic number 86. It is a radioactive, colorless, odorless, tasteless noble gas.
- A polychlorinated biphenyl (PCB) is an organic chlorine compound with the formula $C_{12}H_{10-x}Cl_x$. Polychlorinated biphenyls were once widely deployed as dielectric and coolant fluids in electrical apparatus, carbonless copy paper, and in heat transfer fluids.

Q 2.C

- A spring is a water resource formed when the side of a hill, a valley bottom or other excavation intersects a flowing body of groundwater at or below the local water table, below which the subsurface material is saturated with water. A spring is the result of an aquifer being filled to the point that the water overflows onto the land surface. They range in size from intermittent seeps, which flow only after much rain, to huge pools flowing hundreds of millions of gallons daily.
- **How are springs formed**



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- **Statement 1 is correct:** Springs may be formed in any sort of rock. Small ones are found in many places. The largest springs are formed in limestone and dolomite in the karst topography. **Hence statement 2 is not correct.** Both dolomite and limestone fracture relatively easily. When weak carbonic acid (formed by rainwater percolating through organic matter in the soil) enters these fractures it dissolves bedrock. When it reaches a horizontal crack or a layer of non-dissolving rock such as sandstone or shale, it begins to cut sideways. Thus it occurs in areas where permeable and impermeable rocks alternate. **Hence statement 3 is correct.** As the process continues, the water hollows out more rock, eventually admitting an airspace, at which point the spring stream can be considered a cave. This process often takes tens to hundreds of thousands of years to complete.

Q 3.D

- **Cotton is a "pure" raw material that does not lose weight in the manufacturing process.** So other factors, like, the power to drive the looms, labor, capital, or market may determine the location of the industry. **At present, the trend is to locate the industry at or close to markets, as it is the market that decides what kind of cloth is to be produced. Also, the market for the finished products is extremely variable, therefore, it becomes important to locate the mills close to the market.**
- The cotton textile industry is one of the traditional industries of India. In the ancient and medieval times, it used to be only a cottage industry. India was famous worldwide for the production of muslin, a very fine variety of cotton cloth, calicos, chintz, and other different varieties of fine cotton cloth. The development of this industry in India was due to several factors. One, it is a tropical country and cotton is the most comfortable fabric for a hot and humid climate. Second, a large quantity of cotton was grown in India. Abundant skilled labor required for this industry was available in this country. In fact, in some areas, the people were producing cotton textiles for generations and transferred the skill from one generation to the other and in the process perfected their skills.
- There are three cotton-growing areas, i.e. parts of Punjab, Haryana and northern Rajasthan in the north-west, Gujarat and Maharashtra in the west and plateaus of Andhra Pradesh, Karnataka and Tamil Nadu in the south. **Leading producers of this crop are Gujarat, Maharashtra and Telangana per hectare output of cotton is high under irrigated conditions in the north-western region of the country.** Its yield is very low in Maharashtra where it is grown under rainfed conditions.
- Initially, the British did not encourage the development of the indigenous cotton textile industry. They exported raw cotton to their mills in Manchester and Liverpool and brought back the finished products to be sold in India. This cloth was cheaper because it was produced at mass scale in factories in the U.K. as compared to the cottage based industries of India. **In 1854, the first modern cotton mill was established in Mumbai.**
- **Hence option (d) is the correct answer.**

Q 4.D

- Eutrophication is a natural process that results from the accumulation of nutrients in lakes or other bodies of water. Algae that feed on nutrients grow into unsightly scum on the water surface, decreasing recreational value and clogging water-intake pipes. Decaying mats of dead algae can produce foul tastes and odors in the water; their decay by bacteria consumes dissolved oxygen from the water, sometimes causing fish kills. **Human activities can accelerate eutrophication by increasing the rate at which nutrients enter the water. Hence statement 2 is not correct**
- One of the negative impacts of eutrophication and increased algal growth is a **loss of available oxygen**, thus leading to decreased levels of oxygen known as anoxia. These anoxic conditions can kill fish and other aquatic organisms such as amphibians. **Hence statement 1 is not correct**

Q 5.A

- The Himalayas, geologically young and structurally fold mountains stretch over the northern borders of India. These mountain ranges run in a west-east direction from the Indus to the Brahmaputra. The Himalayas represent the loftiest and one of the most rugged mountain barriers of the world.
- **These mountains are tectonic in origin,** dissected by fast-flowing rivers which are in their youthful stage. Various landforms like gorges, V-shaped valleys, rapids, waterfalls, etc. are indicative of this stage. **Hence, statement 1 is correct.**
- They are still subjected to the interplay of exogenic and endogenic forces, resulting in the development of faults, folds and thrust plains. **They are mostly made up of sedimentary rocks and unconsolidated and semi-consolidated deposits.** The slopes are very steep. **Hence, statement 2 is correct.**
- **The Himalayas along with other Peninsular mountains are young, weak and flexible in their geological structure unlike the rigid and stable Peninsular Block. Hence, statement 3 is not correct.**

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Q 6.D

- **Recently, World Meteorological Congress (WMC) has endorsed a Water Declaration to accelerate implementation of SDG 6 (clean water and sanitation) and approved a new vision and strategy for hydrology and an associated plan of action.**
- The Water and Climate coalition supports the implementation of the UN Water Action Decade through the UN-Water Global Accelerator Framework for SDG 6 with a concrete action mechanism. **Hence, statement 1 is correct.**
- The objective is that members can engage and align with other members on equal footing to generate momentum through implementing concrete activities at national, regional and global scale.
- The Water and Climate Coalition is open for a wide range of members from scientific organizations, private sector, NGOs, UN Organizations, countries and the civil society. **Hence, statement 2 is correct.**
- An 18-member Water and Climate Leaders panel, which is fronting the international coalition is spearheaded by WMO and 10 UN agencies. **Hence, statement 3 is correct.**

Q 7.D

- **Recently, Ministry of Health and family Welfare launched the MusQan initiative. Hence, statement 1 is not correct.**
- MusQan is a new quality improvement initiative for the paediatric age group (0-12 years), within the existing National Quality Assurance Standards (NQAS) framework.
- It aims to ensure timely, effective, efficient, safe, person- centred, equitable and integrated quality services in public health-care facilities. **Hence, statement 2 is not correct.**
- Operation Smile also called as Operation MUSKAAN is an initiative of the Ministry of Home Affairs (MHA) to rescue/rehabilitate missing children.

Q 8.A

- The barasingha (Rucervus duvaucelii), also called swamp deer, is a deer species distributed in the Indian subcontinent. Populations in northern and central India are fragmented, and two isolated populations occur in southwestern Nepal. It has been extirpated in Pakistan and Bangladesh, and its presence is uncertain in Bhutan.
- The swamp deer differs from all other Indian deer species in that the antlers carry more than three times. Because of this distinctive character, it is designated bārah-singgā, meaning "twelve-horned" in Hindustani. Mature stags usually have 10 to 14 tines, and some have been known to have up to 20. In Assamese, barasingha is called dolhorina; dol meaning swamp.
- Its IUCN status is Vulnerable and it is the state animal of two Indian states, Uttar Pradesh and Madhya Pradesh. **Hence option (a) is the correct answer.**

Q 9.B

- The **Ramsar Convention** on Wetlands of International Importance Especially as Waterfowl Habitat is an international treaty for the conservation and sustainable use of wetlands. The aim of the Ramsar list is “to develop and maintain an international network of wetlands which are important for the conservation of global biological diversity".
- **Recently, four more wetlands from India get recognition from the Ramsar Secretariat as Ramsar sites.** These sites are **Thol and Wadhwana from Gujarat and Sultanpur and Bhindawas from Haryana.** With this, the number of **Ramsar sites in India are 46** and the surface area covered by these sites is now 1,083,322 hectares.
- **Bhindawas Wildlife Sanctuary,** the largest wetland in **Haryana** is a **human-made freshwater wetland.** Over 250 bird species use the sanctuary throughout the year as a resting and roosting site. The site supports more than ten globally threatened species including the endangered Egyptian Vulture, Steppe Eagle, Pallas’s Fish Eagle, and Black-bellied Tern. **Hence pair 1 is not correctly matched.**
- **Sultanpur National Park from Haryana** supports more than 220 species of resident, winter migratory and local migratory waterbirds at critical stages of their life cycles. More than ten of these are globally threatened, including the **critically endangered sociable lapwing,** and the endangered Egyptian Vulture, Saker Falcon, Pallas’s Fish Eagle and Black-bellied Tern. **Hence pair 2 is correctly matched.**
- **Thol Lake Wildlife Sanctuary from Gujarat** lies on the **Central Asian Flyway** and more than 320 bird species can be found here. The wetland supports more 30 threatened waterbird species, such as the **critically endangered White-rumped Vulture and Sociable Lapwing**, and the vulnerable Sarus Crane, Common Pochard and Lesser White-fronted Goose. **Hence pair 3 is not correctly matched.**
- **Wadhvana Wetland from Gujarat** is internationally important for its birdlife as it provides wintering ground to migratory waterbirds, including over 80 species that migrate on the Central Asian Flyway. They

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include some threatened or near-threatened species such as the endangered Pallas's fish-Eagle, the vulnerable Common Pochard, and the near-threatened Dalmatian Pelican, Grey-headed Fish-eagle and Ferruginous Duck. **Hence pair 4 is correctly matched.**

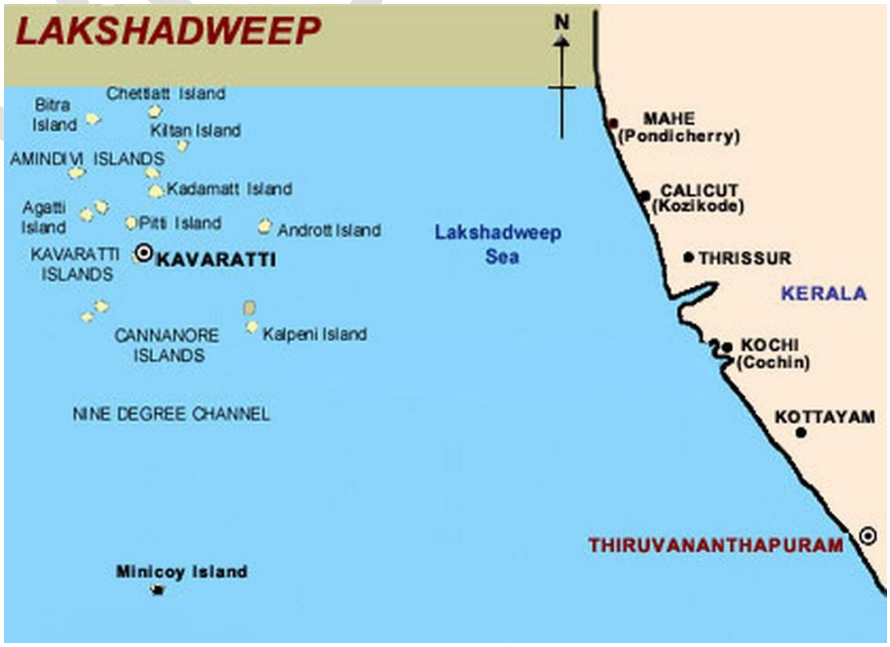
- **Hence option (b) is the correct answer.**

Q 10.C

- **The Maasai are a nomadic tribe** who once wandered with their herd of cattle in central highlands of East Africa in Kenya, Tanzania and Uganda. However, after several clashes , **they are now confined to Kenya and Tanzania. Hence pair 1 is not correctly matched**
- Kenya recognizes over fifty tribes of native people. The Maasai were the dominating tribe at beginning of 20th century. They are one of the very few tribes who have retained most of their traditions, lifestyle and lore.
- In common with the wildlife with which they co-exist, the Maasai need a lot of land. Unlike many other tribes in Kenya, the Maasai are semi-nomadic and pastoral: they live by herding cattle and goats.
- **Hausa, people found chiefly in northwestern Nigeria and adjacent southern Niger**. **Hence pair 2 is not correctly matched.** They constitute the largest ethnic group in the area, which also contains another large group, the Fulani, perhaps one-half of whom are settled among the Hausa as a ruling class, having adopted the Hausa language and culture.
- **The Bindibu are the aborigines of Australia. Hence pair 3 is correctly matched.** They are skilled trackers and some of them use wooden throwing sticks or boomerangs and spears. They always live close to water supply.

Q 11.A

- The islands of the Arabian sea include **Lakshadweep and Minicoy.**
  The entire group of islands is broadly divided by the Eleventh-degree channel, north of which is the Amini Island and to the south of the Cannanore Island.
- These are scattered between 8°N-12°N and 71°E -74°E longitude.
- These islands are located at a distance of 280 km-480 km off the Kerala coast.
- The **entire island group is built of coral deposits.**
- The entire group of islands is broadly divided by the **Eleven-degree channel**, **north of which is the Amini Island, and to the south of the Cannanore Island.**
- The Islands of this archipelago have **storm beaches consisting of unconsolidated pebbles, shingles, cobbles, and boulders on the eastern seaboard.**
- The maritime boundary between the **Maldives and India (Lakshadweep) runs through the Eight-degree channel, locally known as Addigiri Kandu.**
- **Saddle Peak or Saddle Hill is located on North Andaman Island** in India's Andaman and the Nicobar Islands.
- **Narcondam** is a small volcanic island located in the **Andaman Sea. They are supposed to be dormant volcanoes.**
- **Hence option (a) is the correct answer.**



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Q 12.C

- An invasive species is an introduced organism that becomes overpopulated and negatively alters its new environment.
- **Carrot Grass: Parthenium hysterophorus** is a species of flowering plant in the aster family, Asteraceae. It is native to the American tropics. Common names include Santa-Maria, Santa Maria feverfew, whitetop weed, and famine weed. In India, it is locally known as carrot grass, congress grass, or Gajar Ghas. **It is a common invasive species in India, Australia, and parts of Africa.**
- **Tuta absoluta also known as the tomato leaf miner** is one of the destructive invasive moth pests observed for the first time in Pune on tomato plants in October 2014. It has been classified as the most serious threat to tomato production worldwide. It has spread from South America to several parts of Europe, entire Africa to India.
- Some of the examples of invasive species in India are
  - Lantana camera
  - Siam weed
  - Parthenium hysterophorus
  - Mexican devil
  - Giant African snail
  - Cotton Mealy Bug
  - serpentine leafminer
  - spiraling whitefly
  - **Water hyacinth**
  - Mikania micrantha
  - Mesquite
- Musli, also known as Chlorophytum tuberosum is a medicinal blooming plant that has been on the endangered plant list for some time now. It is not an invasive species. **Hence option (c) is the correct answer.**

Q 13.A

- There are different ways of heating and cooling of the atmosphere.
- The earth after being heated by insolation transmits the heat to the atmospheric layers near to the earth in long wave form. The air in contact with the land gets heated slowly and the upper layers in contact with the lower layers also get heated. **This process is called conduction.**
- The air in contact with the earth rises vertically on heating in the form of currents and further transmits the heat of the atmosphere. **This process of vertical heating of the atmosphere is known as convection.**
- The transfer of heat through **horizontal movement of air is called advection.** Horizontal movement of the air is relatively more important than the vertical movement.
- **In middle latitudes, most of diurnal (day and night) variation in daily weather are caused by advection alone. Hence statement 1 is correct.**
- **In tropical regions particularly in northern India during summer season local winds called 'loo' is the outcome of advection process. Hence statement 2 is correct.**
- It is **not restricted** to troposphere only as it happens in other layers of the atmosphere. **The convective transfer of energy is confined only to the troposphere. Hence statement 3 is not correct.**

Q 14.C

- **Tsomoriri is** freshwater to the brackish lake located in the Union Territory of Ladakh and represents the only breeding ground outside of China for the Black-necked crane, and the only breeding ground for Bar-headed geese in India.
- **Renuka lake** is also located in Himachal Pradesh. It is a natural wetland with freshwater springs and inland subterranean karst formations.
- The **Sambhar Salt Lake**, India's largest inland salt lake, is located 80 km southwest of the city of Jaipur. About 230 square km in area, it represents a depression of the Aravalli Range.
- **The Bhoj wetland is situated in the heart of Bhopal district in Madhya Pradesh.** The wetland consists of two man-made lakes--the upper lake and the lower lake. The upper lake, the oldest among large man-made lakes in central India, was created by king Bhoj in the 11th century by constructing an earthen dam across the Kolans river and the lower lake was constructed nearly 200 years ago mostly from the seepage from the upper lake.

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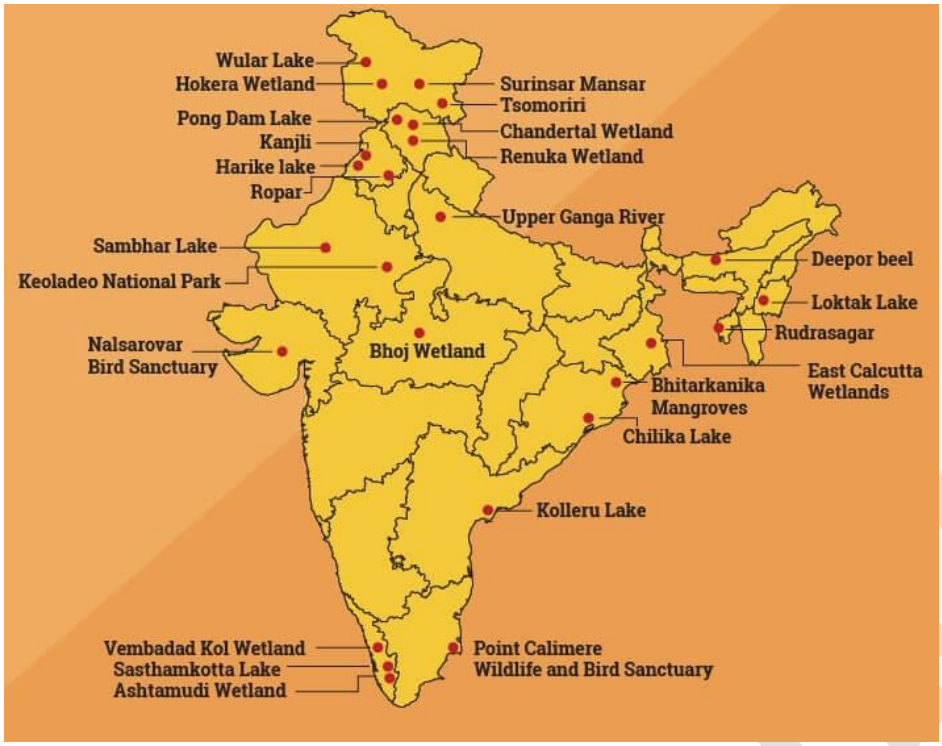

- **Hence option (c) is the correct answer.**

Q 15.C

- With the number of COVID-19 infections rising over the past several weeks, there has been a massive surge in the biomedical waste. Also, unlike last year, it is not limited to hospitals and quarantine centres but households are also producing such wastes.
- **Definition:** According to Biomedical Waste (Management and Handling) Rules 1998, **biomedical waste is any waste which** is **generated during the diagnosis, treatment or immunisation of human beings or animals or in research activities pertaining thereto or in the production of testing of biologicals.**
- **Bio-medical Waste (Management & Handling) Rules were notified under the Environment (Protection) Act, 1986.** These rules apply to all persons who generate, collect, receive, store, transport, treat, dispose, or handle bio medical waste in any form including hospitals, nursing homes, clinics, dispensaries, veterinary institutions, animal houses, pathological laboratories, blood banks, ayush hospitals, clinical establishments, research or educational institutions, health camps, medical or surgical camps, vaccination camps, blood donation camps, first aid rooms of schools, forensic laboratories and research labs. **Hence, statement 1 is correct.**
- **These rules were notified by the Ministry of Environment, Forest and Climate Change under the Environment (Protection) Act, 1986.** In exercise of the powers conferred by Section 6, 8 and 25 of the Environment (Protection) Act, 1986, and in supersession of the Bio-Medical Waste (Management and Handling) Rules, 1998 and further amendments made thereof, the Central Government published the Bio-medical Waste Management Rules, 2016. **Hence, statement 2 is correct.**

Q 16.B

- The cool temperate western margin or British type is under the permanent influence of the Westerlies all round the year. They are also regions of much cyclonic activity, typical of Britain, and are thus said to experience the British type of climate.
  - This climatic belt stretches far inland into the lowlands of North-West Europe, including such regions as northern and western France, Belgium, the Netherlands, Denmark, western Norway, and also north-western Iberia. **In the southern hemisphere, the climate is experienced in southern Chile, Tasmania, and most parts of New Zealand, particularly in South Island.**
  - **Hobart is the capital of Australia's island state of Tasmania and experiences British type of climate. Hence pair 1 is correctly matched.**
  - The mean annual temperatures are usually between 5°C and 15°C. The annual range of temperature is small. Summers are, in fact, never very warm. Monthly temperatures of over 18°C even in mid-summer are rare.
  - The British type of climate has adequate rainfall throughout the year with a tendency towards a slight winter or autumn maximum from cyclonic sources.

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- The natural vegetation of this climatic type is deciduous forest. The trees shed their leaves in the cold season. This is an adaptation for protecting themselves against the winter snow and frost.

- **Savanna or Sudan climate is a transitional type of climate found between the equatorial forests & trade wind hot deserts. It is confined within the tropics (Tropic of Cancer & Tropic of Capricorn) & is best developed in Sudan, where dry & wet climate are most distinct, hence named Sudan climate. Hence pair 2 is not correctly matched.**
- **Rome which is the capital city of Italy experiences a typical Mediterranean climate. Hence pair 3 is correctly matched.**

Q 17.C

- **Recent Context**: **Recently, World Health Organisation (WHO), World organization for Animal Health (OIE) and United Nations Environment Programme (UNEP) have laid down fresh guidelines to reduce the risk of transmission of zoonotic pathogens to humans in food production and marketing chains.**
- A zoonosis is an infectious disease that jumps from a non-human animal to humans.
- **Zoonotic pathogens may be bacterial, viral, parasitic or fungal. Hence, statement 1 is correct.**
- **They can spread to humans through direct contact or through food, water and the environment. Thus, their mode of spread is not limited to bodily fluids. Hence, statement 2 is not correct.**
- Causes of zoonosis diseases are Climatic change, deforestation, animal adaptation and migration, vectors, lack of hygiene, human- animal interface, pathogen mutation and factors leading to its adaptability, urbanization, laboratory escapes, etc. are some of the causes of zoonoses.
- **Examples of zoonotic diseases: Japanese encephalitis (JE), Kyasanur forest disease (KFD), Nipah virus infection, Ebola virus disease, Middle East respiratory syndrome (MERS) etc.**
- **The recent outbreak of the Marburg Virus in West Africa which is a highly virulent disease that causes hemorrhagic fever is also an example of zoonotic disease. Hence, statement 3 is correct.**

Q 18.D

- The Living Planet Index (LPI) is a measure of the state of the world's biological diversity based on population **trends of only vertebrate species** from terrestrial, freshwater, and marine habitats. **Hence statement 1 is not correct.**
- The LPI has been adopted by the Convention of Biological Diversity (CBD) as an indicator of progress towards its 2011-2020 target to 'take effective and urgent action to halt the loss of biodiversity.
- The index is given by the World Wildlife Fund in collaboration with the Zoological Society of London. **Hence statement 3 is not correct.**
- **The 2020 global Living Planet Index shows an average 68% decrease in monitored vertebrate species populations between 1970 and 2016.** For the first time, this Living Planet Report also investigates the status of plants, which provide fundamental support for the life of Earth and are the basis of virtually all terrestrial ecosystems. The report **does not show the number of species lost or extinction.** The LPI shows an average rate of decline in population size of 68% between 1970 and 2016. The LPI includes data for threatened and non-threatened species – if it's monitored consistently over time. Species and populations in the LPI are increasing, declining or stable **Hence statement 2 is not correct.**

Q 19.D

- **Statement 1 is not correct:** A system of standard time is observed by all countries. Most countries adopt their standard time from the central meridian of their countries. The Indian Government has accepted the meridian of 82.5 east for the standard time which is 5 hours 30 minutes ahead of Greenwhich Meridian Time. The whole world has in fact been divided into 24 Standard Time Zones, each of which differs from the next by 15 longitudes or one hour in time.
- **Statement 2 is not correct:** Majority of the countries in the world have adopted their standard time from the central meridian of their countries. There are some countries and regions that follow unusual time zones. Many of them are in increments of a half-hour, different from the usual hour difference you normally see. A great example of this is in India, where despite only being a half an hour different from Coordinated Universal Time the time difference appears much larger. Locations that use non-standard time zones include India, Sri Lanka, Afghanistan, Iran, Myanmar, Newfoundland, Regions of Australia, Venezuela, Nepal, Chatham Islands, and the Marquesas Islands. Another example is the USA. Time in the United States, by law, is divided into nine standard time zones covering the states, territories and other US possessions, with most of the United States observing daylight saving time (DST) for approximately the spring, summer, and fall months.

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Q 20.D

- The National Mission for Green India (GIM) is one of the eight Missions outlined under the National Action Plan on Climate Change (NAPCC). **Hence, statement 2 is correct**.
- It aims at protecting; restoring and enhancing India's diminishing forest cover and responding to climate change by a combination of adaptation and mitigation measures. This mission has adopted an integrated cross-sectoral approach as it will be implemented on both public as well as private lands with a key role of the local communities in planning, decision making, implementation, and monitoring. **Hence, statement 3 is correct.**
- **Mission Goals**
  - To increase forest/tree cover and improve quality of forest;
  - To improve/enhance eco-system services like carbon sequestration and storage (in forests and other ecosystems), hydrological services and biodiversity; along with provisioning services like fuel, fodder, and timber and non-timber forest produces (NTFPs); and
  - To increase forest-based livelihood income. **Hence, statement 1 is correct.**

Q 21.D

- **Global Hunger Index (GHI)** has been recently released, where **India has been ranked 101 out of 116 countries**.
- GHI is used to measure and track hunger at global, regional, and national levels.
- It uses four parameters to determine the score- share of the population that is undernourished, share of children under five who are wasted (low weight for height), share of children under five who are stunted ((low height for age), and the under-five mortality rate.
- **GHI is published by Concern Worldwide (international humanitarian organization) and Welthungerhilfe (private aid organization in Germany). Hence, statement 1 is not correct.**
- India's rank in the previous five-year period was 2016- 97th, 2017- 100th, 2018- 103rd 2019- 102nd and 2020- 94th. **Hence, statement 2 is not correct.**

Q 22.B

- **La Nina:** La Nina means **Little Girl** in Spanish. La Nina is also sometimes called El Viejo, anti-El Nino, or simply **"a cold event."** La Nina has the **opposite effect of El Nino**. During La Nina events, **trade winds are even stronger** than usual, pushing more warm water toward Asia. Off the west coast of the Americas, upwelling increases, bringing cold, nutrient-rich water to the surface. **Hence statement 3 is not correct.**
- These **cold waters in the Pacific** push the jet stream northward. During a La Nina year, winter temperatures are warmer than normal in the South and cooler than normal in the North. La Nina can also lead to a more severe hurricane season.
- **What causes La Nina?** Typically, a La Nina **is preceded by a buildup of cooler-than-normal subsurface waters** in the tropical Pacific. Then, easterly trade winds strengthen, cold upwelling off the west coast of South America and along the equator intensifies, and sea-surface temperatures (SSTs) drop below normal. **Hence statement 2 is correct.**
- **What are the global impacts of La Nina?** La Nina is **characterized by** the opposite process: the trade winds strengthen, and warm water and rainstorms are pushed to the far western equatorial Pacific over Indonesia. This results in cooler surface water in the equatorial Pacific Ocean, dry conditions in Pacific coastal South America, and much wetter conditions in northern Australia and Southeast Asia.
- La Nina events are generally associated with **increased rainfall in southern Africa**, although they are not the only contributing factors. La Nina is associated with **rainfall deficiency in equatorial eastern Africa** – for instance, Somalia and eastern Kenya. **Hence statement 1 is correct.**
- In many locations, especially in the tropics, La Nina (or cold episodes) produces roughly the opposite climate variations from El Nino. For instance, parts of Australia and Indonesia are prone to drought during El Nino but are typically wetter than normal during La Nina.

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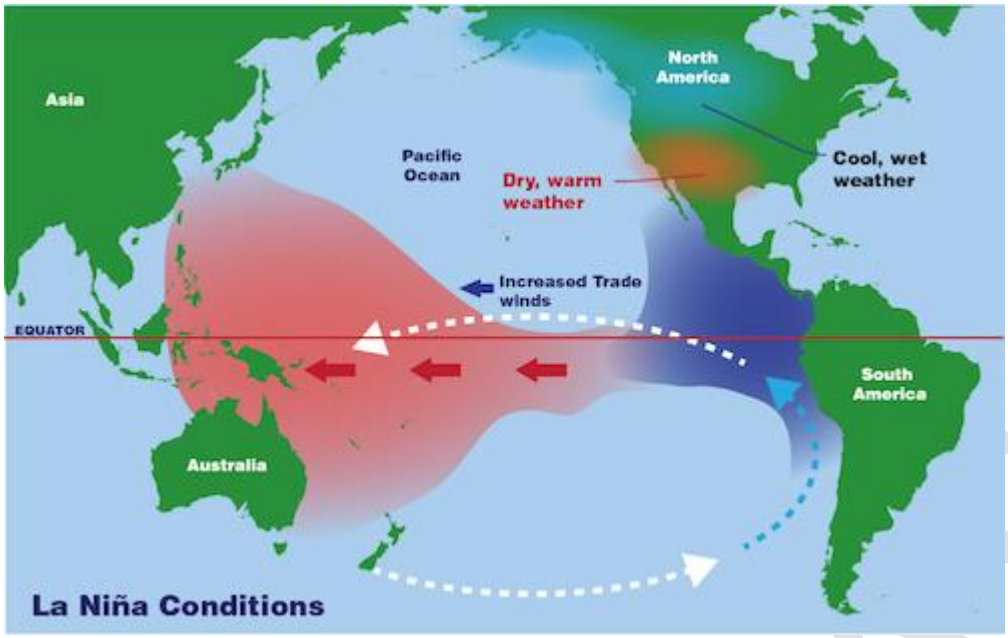

Q 23.C

- The 51st Tiger Reserve in the country came up in **Meghamalai on the Kerala-Tamil Nadu border.** This forest region is the continuation of the Periyar Tiger Reserve in Kerala. The new tiger reserve is formed by combining the **Meghamalai Wildlife Sanctuary and Srivilliputhur Grizzled Squirrel Wildlife Sanctuary.** The proposal states that the new tiger reserve will not only lead to wildlife protection of the country's flagship species but will also result in the rejuvenation of the Vaigai river by protecting the river's origins in these forests. **Hence option (c) is the correct answer.**
- **Kamlang Tiger reserve** is situated in the **South-Eastern part of the Lohit District of Arunachal Pradesh**. The name comes from the River Kamlang, which flows through the Sanctuary and joins the Brahmaputra. The local inhabitants are Hashmi, Digaru, Mizo. They Claim themselves as descendent of "King Rukmo" of "Mahabharat". This area contains all four big cats (Tiger, Leopard, Clouded Leopard, and Snow Leopard). It also has a population of endangered spp. like Hollock gibbon, Slow lorises, Leopard cat, Himalayan palm civets, etc.
- **Simlipal National Park is a national park and a tiger reserve** in the Mayurbhanj district in the Indian state of Odisha covering 2,750 km². The park is in the Mayurbhanj district in the Indian state of Odisha. Simlipal Elephant Reserve is an ecosystem complete with forest vegetation (mainly sal trees), fauna, and the adjoining Ho / Santhal tribal settlements.
- **Parambikulam Tiger Reserve** is situated in **Chittur taluk of Palakkad district and is about 100 km away from Palakkad.** The reserve's claim to fame is the tiger population - which shows a significant increase in periodical censuses. According to the 2010 census, Parambikulam and surrounding sanctuaries are home to 32-36 tigers. The reserve is credited with the **first scientifically managed teak plantation in the world** which was later merged with the forest land. Here stands the world's largest and oldest teak tree named "Kannimara".

Q 24.C

- The Union Cabinet has recently approved the ratification of seven chemicals listed under the **Stockholm Convention on Persistent Organic Pollutants (POPs).**
- Majorly there are major **international conventions in the sphere of environmental pollution and control**, they are:
  - **Basel Convention** on the Control of trans-Boundary Movements of **Hazardous waste** and their Disposal
  - **Rotterdam Convention** on Prior Informed Consent Procedure for certain **Hazardous Chemicals and Pesticide**s in International trade
  - **Stockholm Convention** on **Persistent Organic Pollutants**
- **About the Stockholm Convention:** It is a **global treaty under UNEP** to protect human health and the environment from chemicals that remain intact in the environment for long periods. **Hence statement 1 is correct.** It consists of:
  - **Annex A**: Includes chemicals that are listed for complete elimination from production, use, export, and import.

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- **Annex B**: Chemicals that have restrictions in use and production for specific purposes only.
- **Annex C**: This annex has chemicals that have unintentional production.

- **Persistent Organic Pollutants** (POPs) are organic chemical substances, that is, they are carbon-based. They possess a particular combination of physical and chemical properties such that, once released into the environment, they:
  - remain intact for exceptionally **long periods of time** (many years);
  - become **widely distributed throughout the environment** as a result of natural processes involving soil, water, and, most notably, air;
  - accumulate in the fatty tissue of living organisms including humans, and are **found at higher concentrations at higher levels in the food chain**; and
  - are toxic to both humans and wildlife.
- It was **signed in 2001** and effective from May 2004. It aims to eliminate or restrict the use of POPs.
- **Global Environment Facility** serves as its financial mechanism. The ratification process would enable India to access the Global Environment Facility(GEF) financial resources. **Hence statement 2 is correct.**
- It is **legally binding.** Article 16 of the convention requires that the effectiveness of the measures adopted by the convention is evaluated in regular intervals.

Q 25.C

- Wetland Rules, 2017 were notified under provisions of the Environment (Protection) Act, 1986 to protect wetlands across the country. under it, Wetlands can be notified by Centre, State and UT Administration. **Hence statement 1 is correct**.
- national wetlands conservation program now under umbrella program '**National Plan for Conservation of Aquatic Eco-Systems' (NPCA)** is a centrally sponsored scheme implemented by states/UTs **Hence statement 2 is correct.**

Q 26.D

- Aestivation is also known as summer sleep. it is defined as the inactivity of the organisms during the summer season in order to reduce their loss of energy through increased metabolic rate.It also helps to prevent desiccation from the effects of the high temperature in tropical regions. Many reptiles, amphibians, insects, and even mammals practice aestivation. Eg. The Madagascan fat-tailed dwarf lemur, Crocodiles, Salamanders, Frogs, earthworms, etc. However snakes and bear practices hibernation that is winter sleep. **Hence option (d) is the correct answer.**

Q 27.C

- **The National Adaptation Fund for Climate Change (NAFCC) is a Central Sector Scheme which was set up in the year 2015-16.**
- The overall aim of NAFCC is to support concrete adaptation activities that mitigate the adverse effects of climate change. The activities under this scheme are implemented in a project mode.
- The **projects related to adaptation in sectors such as agriculture, animal husbandry, water, forestry, tourism, etc.** are eligible for funding under NAFCC.
- **National Bank for Agriculture and Rural Development (NABARD) is the National Implementing Entity (NIE). Hence option (c) is the correct answer.**

Q 28.D

- **St. Angelo's Fort**
  - It was built by the first Portuguese Viceroy in India, **Don Francesco de Almeida (1505)**, St. Angelo's Fort is among the most historic sites **in the Kannur district of Kerala**. In 1663 CE, the Dutch captured this fort, made certain modifications, and later sold it to the Ali Raja of the Arakkal dynasty. The Britishers then conquered this fort in 1790 CE and used it as their military base.
  - The fort, built **using laterite stones and surkhi [brick dust] mixture, has a triangular layout.** Three beautiful and gigantic bastions, a lighthouse, cannons, barracks, and tombstones are the notable features of this fort. **Hence pair 1 is correctly matched.**
- **Ranghar**
  - **This is a double-storied royal pavilion of Ahom kings in the Sivasagar district of Assam.** The central unit of the ground plan is rectangular and annexed with small structures of trapezoid ends making the entire ground plan like an octagon. The roof of the structure is parabolically supported by rows of massive columns and semi-circular arches and it shows Islamic influence in its architectural features. I**t is believed that the oval pavilion was built by Ahom king Pramatta Singha for watching various games. Hence pair 2 is correctly matched.**

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- **Tomb of Sher Shah Suri**
  - The tomb of Sher Shah Suri is **in Sasaram, Bihar.** This tomb is an example of **Indo-Islamic architecture**, it was designed by the architect Mir Muhammad Aliwal Khan. The tomb stands at the **center of the lake on a square stone plinth with domed kiosks, chhatris at each of its corner**s, further, there are stone banks and stepped moorings on all sides of the plinth, which is connected to the mainland through a wide stone bridge. The **main tomb is built on an octagonal plan**, topped by a dome, and surrounded by ornamental domed kiosks which were once covered in colored glazed tile work. **Hence pair 3 is correctly matched.**

Q 29.D

- At **COP15 recently held**, G20 recognized the importance of protecting 30% of the planet by 2030 i.e. 30% of the Earth's land and oceans to have protected status by 2030. **Hence, statements 1 and 2 are correct.**
- The 30x30 target is expected to be the centerpiece of a global biodiversity treaty to be signed in 2022.
- Currently, 75 countries are members of the **High Ambition Coalition for Nature and People**, a group of countries pushing for the inclusion of 30x30 in the treaty, known as the post-2020 Global Biodiversity Framework. **Hence, statement 3 is correct.**

Q 30.A

- The MAB Programme develops the basis within the natural and social sciences for the rational and sustainable use and conservation of the resources of the biosphere and for the improvement of the overall relationship between people and their environment.
- The Man and the Biosphere Programme was formally launched in 1971 as an intergovernmental scientific initiative to improve the relationship between people and their environment, by proposing interdisciplinary research and training in natural resources management. The concept of MAB reserves originated in 1974 by a task force of UNESCO's Man and the Biosphere Programme, and the first MAB reserves were designated two years later.

By focusing on sites internationally recognized within the World Network of Biosphere Reserves, the MAB Programme strives to:

- **identify and assess the changes in the biosphere resulting from human and natural activities** and the effects of these changes on humans and the environment, in particular in the context of climate change;
- **study and compare the dynamic interrelationships between natural/near-natural ecosystems and socio-economic processes**, in particular in the context of the accelerated loss of biological and cultural diversity with unexpected consequences that impact the ability of ecosystems to continue to provide services critical for human well-being;
- ensure basic human welfare and a liveable environment in the context of rapid urbanization and energy consumption as drivers of environmental change;
- **promote the exchange and transfer of knowledge on environmental problems and solutions**, and to foster environmental education for sustainable development.
- **Hence, all the statements are correct.**

Q 31.B

- Central Zoo Authority was established based on a report submitted by The Expert Group on Zoos. Accordingly, the Central Zoo Authority was established as a statutory body under the Ministry of Environment & Forests by the Government of India in the year 1992. The Authority consists of a Chairman, ten members, and a Member Secretary.
- The main objective of this Authority is to complement and strengthen the national effort in the conservation of the rich biodiversity of the country, particularly the fauna as per the National Zoo Policy, 1998. Other objectives of this Authority include- enforcing minimum standards and norms for upkeep and healthcare of animals in Indian zoos and controlling the mushrooming of unplanned and ill-conceived zoos.
- Every zoo in the country is required to obtain recognition from the Authority for its operation. The Authority evaluates the zoos with reference to the parameters prescribed under the Rules and grants recognition, accordingly. The Authority's role is more of a facilitator than a regulator. It, therefore, provides technical and financial assistance to such zoos which have the potential to attain the desired standard in animal management.
- The Authority has been assigned the following functions under Section 38 (C) of the Wildlife (Protection) Act, 1972:

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- **specify the minimum standards for housing, upkeep, and veterinary care of the animals kept in zoos;**
- evaluate and assess the functioning of the zoos with respect to the prescribed standards or norms;
- **To recognize or derecognize zoos;**
- **To identify endangered species of wild animals for purposes of captive breeding and assigning responsibility in this regard to a zoo**;
- To coordinate the acquisition, exchange, and loaning of animals for the breeding purpose;
- To ensure the maintenance of study books of endangered species of wild animals bred in captivity;
- To identify priorities and themes with regard to the display of captive animals in zoos;
- To coordinate training of zoo personnel in India and outside India;
- To coordinate research in captive breeding and educational programs for the purposes of zoos;
- To provide technical and other assistance to zoos for their proper management and development on scientific lines;
- To perform such other functions as may be necessary to carry out the purposes of this Act with regard to zoos

- The Animal Welfare Board of India is a statutory advisory body established in 1962 under Section 4 of the Prevention of Cruelty to Animals Act, 1960. Animal Welfare Board of India was formed for ensuring that animal welfare laws in the country are diligently followed, to provide grants to Animal Welfare Organizations, and to advise the Government of India on animal welfare issues. Other functions of the board include:
  - To co-operate with, and co-ordinate the work of, associations or bodies established for the purpose of preventing unnecessary pain or suffering to animals or for the protection of animals and birds.
  - **To advise the Government on matters relating to the medical care and attention which may be provided in animal hospitals, and to give financial and other assistance to animal hospitals whenever the Board thinks it necessary to do so. Hence statement 3 is not correct.**
  - To take all such steps as the Board may think fit to ensure that unwanted animals are destroyed by local authorities
  - To advise the Government on any matter connected with animal welfare or the Prevention of infliction of unnecessary pain or suffering on animals.
  - To take all such steps as the Board may think fit for veterinary assistance to animals.

Q 32.D

- **The Haryana Forest Department has recently started aerial seeding across the state on a pilot basis, with the drive touching the Aravalli region of Faridabad district. Before Faridabad, this method has been put to use in Yamunanagar and Mahendragarh earlier.** Plantation on 100 acres will be undertaken using this method during the pilot project.
- **Aerial seeding** is a technique of plantation wherein seed balls, seeds covered with a mixture of clay, compost, char and other components, are sprayed on the ground using aerial devices, including planes, helicopters or drones.
- Seeds balls or seed pellets are dispersed in a targeted area by the low-flying drones, falling to the ground with the help of the coating of clay, compost, char and other material, that provides the required weight for seeds to drop on a predetermined location rather than disperse in the wind.
- These pellets will then sprout when there is enough rain, with the nutrients present within them helping in the initial growth.
- Advantages of this technique:
- **Areas that are inaccessible,** have steep slopes, are fragmented or disconnected with no forest routes, making conventional plantation difficult, can be targeted with aerial seeding. **Hence statement 2 is correct.**
- The process of the seed's germination and growth is such that **it requires no attention after it is dispersed,** the reason why seed pellets are known as the **"fire and forget" way of the plantation.**
- They eliminate the need for **ploughing and digging holes** in the soil and the seeds do not need to be planted, since they are already surrounded by soil, nutrients, and microorganisms. **Hence statement 1 is correct.**
- The **clay shell of these pellets** along with the other items in the mixture also protects them from birds, ants and rats. **Hence statement 3 is correct.**

Q 33.B

- More than 70 percent of all the species recorded are animals, while plants (including algae, fungi, bryophytes, gymnosperms, and angiosperms) comprise no more than 22 percent of the total.

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- Among animals, **insects (phylum Arthropoda) are the most species-rich taxonomic group,** making up more than 70 percent of the total. That means, out of every 10 animals on this planet, 7 are insects. The number of fungi species in the world is more than the combined total of the species of fishes, amphibians, reptiles, and mammals**. Hence statement 2 is not correct.**

- Biodiversity is a complex term that includes not only the variety of different animals (species diversity) but also the difference between animals of the same species (genetic diversity) and between ecosystems (ecosystem diversity). Biodiversity is measured by two major components: species richness and species evenness.
  - **Species richness** is the number of species within a defined region.
  - **Species evenness** takes into account the number of species and the relative abundance of species in a community.
- **Alpha diversity** sometimes referred to as point diversity, is the species richness that occurs within a given area within a region that is smaller than the entire distribution of the species.
- **Beta diversity** is the rate at which species richness increases as one move in a straight line across a region from one habitat to another habitat. In other words, it is the rate of change in species richness that occurs with a change in spatial scale.
- **Gamma diversity** is the species richness within an entire region. In other words, it is a measure of the overall diversity of the different ecosystems within a region. **Hence statement 3 is correct.**
- **Genetic diversity:** A single species might show high diversity at the genetic level over its distributional range. India has more than 50,000 genetically different strains of rice and 1,000 varieties of mango.
- **Species diversity:** The diversity at the species level, for example, the Western Ghats have a greater amphibian species diversity than the Eastern Ghats. **The diversity index of zero represents infinite diversity, and 'one' represents only one species present. Hence statement 1 is correct.**
- **Ecological diversity:** At the ecosystem level, India, for instance, with its deserts, rain forests, mangroves, coral reefs, wetlands, estuaries, and alpine meadows has a greater ecosystem diversity than a Scandinavian country like Norway.

Q 34.B

- **The thylacine is an extinct carnivorous** marsupial that was native to the Australian mainland and the islands of Tasmania and New Guinea. The last known live animal was captured in 1930 in Tasmania. **It is commonly known as the Tasmanian tiger or the Tasmanian wolf.**
- **The dodo is an extinct flightless bird** that was endemic to the island of Mauritius, which is east of Madagascar in the Indian Ocean. The dodo's closest genetic relative was the also extinct Rodrigues solitaire
- **Steller's sea cow is an extinct sirenian** described by George Wilhelm Steller in 1741. At that time, it was found only around the Commander Islands in the Bering Sea between Alaska and Russia
- The mandarin duck is a perching duck species native to the East Palearctic. It is medium-sized, at 41–49 cm long with a 65–75 cm wingspan. It is closely related to the North American wood duck, the only other member of the genus Aix. The species is not extinct. **Hence only option 4 is not correct.**

Q 35.C

- **Coral Reef**
  - Coral reefs are built by and made up of thousands of tiny animals—coral **"polyps"**—that are related to anemones and jellyfish. Polyps are shallow-water organisms that have a soft body covered by a calcareous skeleton. The polyps extract calcium salts from seawater to form these hard skeletons.
  - The polyps live in colonies fastened to the rocky seafloor. When the coral polyps die, they shed their skeleton [coral] on which new polyps grow. The cycle is repeated for millions of years leading to the accumulation of layers of corals (shallow rock created by these depositions is called reef).
- **There are two main types:**
  - A hard coral, which is covered in a hard, bone-like skeleton.
  - A soft coral, which doesn't have any hard skeleton around it at all.
- **Warm-water coral reefs & Cold-water coral reefs: Warm water reefs** need light from the sun to make food and grow. They are usually found in shallow waters where the sunlight can reach the reef. The sunlight also makes the water warm, giving it the name warm water reef. The Great Barrier Reef is a warm water shallow reef. **Hence, statement 1 is correct.**
- However, not all corals are found on island coasts in shallow seas. In fact, over half of all known coral species are found in deep, dark waters where temperatures range from 4-12°C. For this reason, we call these corals the "cold-water" or "deepwater" corals. They are found all over the world. **Hence, statement 3 is not correct.**

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- Unlike tropical corals, **cold-water corals** don't have symbiotic algae living in their polyps so they don't need sunlight to survive. They feed solely by capturing food particles from the surrounding water. Their polyps tend to be much bigger than tropical corals. **Hence, statement 2 is not correct.**
- **Cold-water coral** reefs are commonly found where current flow is accelerated. They are found on the continental shelf, and also in deep-sea areas with topographic highs, such as seamounts, mounds, ridges, and pinnacles. Deep-sea corals grow slowly (5-25mm a year), but over time they form extensive reefs. Deep-sea coral reefs are made up of only a few coral species but they provide a home for many other animals, including sea fans, sponges, worms, starfish, brittle stars, sea urchins, crustaceans, and fish.

Q 36.C

- **Venezuela** in South America lies to the north of Equator.

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Q 37.D

- **Recently, 16th East Asia Summit (EAS) took place in October, 2021.** In this summit EAS leaders adopted three statements on mental health, economic recovery through tourism and sustainable recovery.
- EAS areas of cooperation includes: environment and energy, education, finance, global health issues and pandemic diseases, natural disaster management, ASEAN connectivity, Economic Cooperation & trade, food security and maritime security.
- **East Asia Summit (EAS)** membership includes:
  - ASEAN,
  - **USA**
  - **China,**
  - **Russia,**
  - Australia,
  - New Zealand,
  - India,
  - Japan, and
  - South Korea
- **Hence, option (d) is the correct answer.**

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Q 38.C

- Benzene is a chemical that is a colorless or light yellow liquid at room temperature. It has a sweet odor and is highly flammable. Benzene evaporates into the air very quickly. Its vapor is heavier than air and may sink into low-lying areas. Benzene dissolves only slightly in water and will float on top of the water.
- Human exposure to benzene has been associated with a range of acute and long-term adverse health effects and diseases, including cancer and aplastic anemia.
- Benzene is formed from both natural processes and human activities. **Natural sources of benzene include volcanoes and forest fires**. Sources of exposure to benzene include;
    - As benzene occurs naturally in crude petroleum at levels up to 4 g/l, human activities using petroleum lead to exposure.
    - Benzene has been detected at high levels in indoor air. Although some of this exposure might be from **building materials (paints, adhesives, etc.), most is from cigarette smoke** in both homes and public spaces.
    - Outdoor air contains low levels of benzene from **motor vehicle exhaust and industrial emissions**.
    - **Petrol refueling stations were a major source of benzene emissions. Hence, option (c) is correct answer.**
- **Animal excreta is not known as a source of benzene.**

Q 39.A

- Population aging is the process by which the share of the older population becomes proportionally larger. This is a new phenomenon of the twentieth century. In most of the developed countries of the world, the population in the higher age groups has increased due to increased life expectancy. With a reduction in birth rates, the proportion of children in the population has declined. **Hence only option 1 and option 2 are correct.**
- Population ageing is an increasing median age in a population due to declining fertility rates and rising life expectancy. Most countries have a rising life expectancy and an ageing population. Japan has the highest proportion of the oldest population in the world as the median age of its population is around 47 years.
- Demographic dividend, as defined by the United Nations Population Fund (UNFPA) means, "the economic growth potential that can result from shifts in a population's age structure, mainly when the share of the working-age population (15 to 64) is larger than the non-working-age share of the population (14 and younger, and 65 and older). Therefore an increase in the proportion of the working population does not contribute to population ageing. **Hence option 3 is not correct.**

Q 40.D

- Kanha Tiger Reserve, also known as **Kanha–Kisli National Park,** is one of the tiger reserves of India and the largest national park of the state of Madhya Pradesh. It lies below the Tropic of Cancer.
- **Pench National Park** is located in the districts of **Seoni and Chhindwara**. Named after the pristine River Pence which flows through the park, Pench National Park is one of the most popular wildlife reserves in India. The park also has its mention in the famous story of 1894, 'The Jungle Book', penned down by the renowned English author Rudyard Kipling.
- **Bhadra Tiger reserve** is in the State of Karnataka. The sanctuary takes its name from the Bhadra River, its lifeline. Popularly known as **Muthodi Wildlife Sanctuary**, after the village on its periphery, it was declared a Project Tiger reserve.
- **Udanti-Sitandi tiger reserve** came into existence in the year 2008-09, are two separate reserves combined together and controlled by one field officer. It comprises a core area of 851.09 sq km. and a buffer area of 991.45 sq km. thus the total area of this tiger reserve is 1842.54 sq km. Located in **Chhattisgarh state**.
- All the four tiger reserves fall below the Tropic of Cancer. **Hence option (d) is the correct answer.**

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Q 41.B

- The air services is better developed in the parts of Northern hemisphere mostly because of the high demand for faster means of transportation due to the high density of population and economic development.
- The **Southern hemisphere lacks the demand aspect due to sparser population and low economic development. Hence, statements 1 and 3 are correct.**
- The Southern hemisphere is characterized by **less continentality** and the presence of large water bodies. Hence, the construction of airstrips becomes difficult. **Hence, statement 2 is not correct.**
- Though the Southern hemisphere has less landmass characterized by forests, deserts and grasslands which once cleared, construction of air service infrastructure is easily possible.

Q 42.D

- **Recently, 160th birth anniversary of Madam Bhikaji Cama was celebrated on 24th September, 2021**
- Madam Bhikaji Cama was a political activist and advocate for women's rights. She mobilized public opinion against British rule in India, especially among expatriate Indians. She stayed in Germany, France and Scotland for one year each.
- In London, she participated in activities of Dadabhai Nowrojee's 'London India Society'. She became close to 'India House', which was the safe haven for Indian revolutionaries. During her stay in London, she received an invitation of the "International Socialist Conference" at Stuttgart, Germany in 1907, where she unfurled the first version of Indian national flag.
- In memory of Madanlal Dingra she started a periodical in September 1909 called 'Madan Talwar'. Along with Singh Rewabhai Rana and Munchershah Burjorji Godrej, she co-founded the Paris Indian Society and developed close links with the Socialist Party and Russian socialists in exile in Paris.
- **Hence, option (d) is the correct answer.**

Q 43.B

- The Luni derived its name from the Sanskrit lavanavari ("salt river") and is so-called because of its excessive salinity. Luni is the only river basin of any significance in Western Rajasthan, which forms the bulk of the arid zone. Luni is the largest river system of Rajasthan, west of Aravali.
- **It originates near Pushkar on the western slopes of the Aravalli ranges in two branches, i.e. the Saraswati and the Sagarmati, which join with each other at Govindgarh.** From here, the river comes

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out of Aravali and is known as Luni. It flows towards the west till Telwara and then takes a southwest direction to join the Rann of Kuchchh. The entire river system is ephemeral.

- The peculiarity of this river is that it tends to increase its width rather than deepening the bed because the banks are of soils, which are easily erodible whereas beds are of sand. The floods develop and disappear so rapidly that they have no time to scour the bed.
- **Hence option (b) is the correct answer.**

Q 44.A

- Himalayan brown bear is a large bear with thick fur which is most often sandy or reddish-brown in color. The head is large and the body heavy and the legs stocky. Males are larger than females, ranging from 150 to 230 cm in length compared to 137 to 183 cm for the female bears. According to the geological survey of India recent report, their population is severely diminishing due to habitat fragmentation.
- They are found in the North-western and central Himalayas, including Pakistan, India, Nepal, the Tibetan Autonomous Region of China, and Bhutan. In India, they are present in the Great Himalayan National Park (Himachal Pradesh). They may also be present in the south and western Ladakh, in the upper Suru and Zanskar valleys. **Hence statement 1 is correct.**
- Himalayan brown bears are Omnivorous, eating grasses, roots, bulbs, and other plants, insects, and small mammals such as marmots, pikas, and voles. In the autumn they descend to lower levels to feed on fruits and berries. They will also take sheep and goats and feed upon carrion when found. **Hence statement 2 is not correct.**

Q 45.C

- There are three species of rhino in Asia—Greater one-horned (Rhinoceros unicornis), Javan, and Sumatran. Only the Great One-Horned Rhino is found in India. **Hence statement 1 is not correct**. Also known as the Indian rhino, it is the largest of the rhino species.
- **Habitat:**
    - The species is restricted to small habitats in Indo-Nepal terai and northern West Bengal and Assam. In India, rhinos are mainly found in Assam, West Bengal, and Uttar Pradesh. **Hence statement 3 is not correct.**
    - Assam has an estimated 2,640 rhinos in four protected areas, i.e. Pabitora Wildlife Reserve, Rajiv Gandhi Orang National Park, Kaziranga National Park, and Manas National Park.
    - Protection Status:
    - IUCN Red List: Vulnerable. **Hence statement 2 is not correct.** Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): Appendix I (Threatened with extinction and CITES prohibits international trade in specimens of these species except when the purpose of the import is not commercial, for instance for scientific research). Wildlife Protection Act, 1972: Schedule I.

Q 46.B

- **The Nagoya Protocol** on access and benefit-sharing (ABS) adopted under the aegis of CBD in 2010, **is aimed at fair and equitable sharing of benefits arising from the utilization of genetic resources. Hence statement 1 is not correct.**
- **The Cartagena Protocol on Biosafety to the Convention on Biological Diversity is an international agreement on biosafety as a supplement to the Convention on Biological Diversity (CBD) effective since 2003.** The Biosafety Protocol seeks to protect biological diversity from the potential risks posed by genetically modified organisms resulting from modern biotechnology.
- **The objective of the Protocol is to contribute to ensuring an adequate level of protection in the field of the safe transfer, handling, and use of 'living modified organisms (LMOs)** resulting from modern biotechnology that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health, and specifically focusing on transboundary movements.
- The Protocol applies to the transboundary movement, transit, handling, and use of all living modified organisms that may have adverse effects on the conservation and sustainable use of biological diversity, taking also into account risks to human health.
- A number of agreements under the **World Trade Organization (WTO)**, such as the **Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement)** and the **Agreement on Technical Barriers to Trade (TBT Agreement)**, and **the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPs), contain provisions that are relevant to the Protocol. Hence statement 2 is correct.**

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- **It also contains procedures for moving LMOs across borders using the following instruments:**
  - **Advance Informed Agreement:** applies to the first intentional transboundary movement of LMOs for intentional introduction into the environment of the Party of import.
  - **LMOs intended for food or feed, or for processing (LMO-FFP):** A Party must inform other Parties through the Biosafety Clearing-House, within 15 days, of its decision regarding the domestic use of LMOs that may be subject to transboundary movement. Decisions by the Party of import on whether or not to accept the import of LMOs-FFP are taken under its domestic regulatory framework that is consistent with the objective of the Protocol.
  - **Handling, transport, packaging, and identification:** Parties are required to take measures for the safe handling, packaging, and transportation of LMOs that are subject to transboundary movement.
  - **Biosafety Clearing-House:** facilitate the exchange of scientific, technical, environmental, and legal information on, and experience with, living modified organisms; and to assist Parties to implement the Protocol. **Hence option (b) is the correct answer.**

Q 47.D

- Countries from across the oceans decided to tackle marine plastic litter under the ambitious global project called 'GloLitter Partnerships Project' (GLP).
- **The Project is implemented by the International Maritime Organization (IMO) and the Food and Agriculture Organization of the United Nations (FAO), with initial funding from the Government of Norway via the Norwegian Agency for Development Cooperation (Norad).**
- **Hence, statement 1 is not correct.**
- **The GloLitter Partnerships project will assist developing countries to prevent and reduce marine litter, especially plastic marine litter, within the maritime transport and fisheries sectors and identify opportunities for the reduction of plastic uses in both industries.**
- **Hence, statement 2 is not correct as the project aims to reduce litter from only fisheries and maritime transport sectors.**
- The project will develop mechanisms for sustainability, and enhance regional cooperation to support the transition of maritime transport and fisheries sectors towards a low plastics future. The GLP will achieve its objectives by focusing on a number of areas identified in the recently adopted IMO Action Plan to Address Marine Plastic Litter from Ships, and in complementary actions, as identified by FAO, including supporting the provisions of the recently-endorsed FAO Voluntary Guidelines for the Marking of Fishing Gear.
- Food and Agricultural Organization is a specialized agency of the United Nations that leads international efforts to defeat hunger. Headquartered in Rome, Italy.
- International Maritime Organization is United Nations specialized agency with responsibility for the safety and security of shipping and the prevention of marine and atmospheric pollution by ships.

Q 48.A

- There are 30 notified Elephant Reserves (ERs) in the country spread over 15 states. Baitami (Odisha) and Lemru (Chhattisgarh) are other ERs that are yet to be notified by the state governments. The area under these would be extending over about 61830 sq km.
- Dehing Patkai Elephant Reserve notified in 2003, by the Government of Assam has 937 sq. km. Dehing Patkai Wildlife Sanctuary is located within the larger Dehing Patkai Elephant Reserve. The Assam government has upgraded Dehing Patkai Wildlife Sanctuary into a national park. The announcement comes just months after the National Board of Wildlife's (NBWL) conditional clearance to a coal mining project by Coal India Limited (CIL) in the Dehing Patkai Elephant Reserve sparked a spate of virtual protests in the state. **Hence, pair 1 is correctly matched.**
- The proposed Lemru Elephant Reserve in Chhattisgarh, in the pipeline for 20 years, has become the subject of yet another controversy. The state Forest and Environment Department asked the Principal Chief Conservator of Forests (Wildlife) to make a presentation for decreasing the area of the proposed reserve from 1,995 sq km to 450 sq km. **Badalkhol Tamorpingla, the other elephant reserve measuring 1048.30 sq km, was notified by the Chhattisgarh government in September 2011.** Tamorpingla wildlife sanctuary exists in the state but no work on the elephant reserve has begun. **Hence, pair 2 is correctly matched.**
- The National Highways Authority of India (NHAI) has proposed to divert 60 hectares of reserve forest land in Rayala Elephant Reserve (RER) in the Eastern Ghats of Andhra Pradesh for construction of phase 2 of the Bengaluru-Chennai expressway. It sent a proposal to the ministry of environment and forest (MoEF) in this regard. To protect and conserve these Elephants the government of Andhra Pradesh in 2003 has issued a notification for "Rayala Elephant Reserve". **Hence, pair 3 is not correctly matched.**

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Q 49.A

- **Recently, there have been attacks on Israeli ships, due to which Israeli navy has stepped up its presence in Red Sea.**
- The Red Sea is the world's northernmost tropical sea and is also one of the most heavily traveled waterways.
- The Red Sea is a semi-enclosed, inlet (or extension) of the Indian Ocean between the continents of Africa from Asia. It is connected to the Arabian Sea and the Indian Ocean to the south through the Gulf of Aden and the narrow strait of Bab el Mandeb. The northern portion of the Red Sea is bifurcated by the Sinai Peninsula into the Gulf of Aqaba and the Gulf of Suez, where it is connected to the Mediterranean Sea via the famous Suez Canal.
- A total of 6 countries of Asia and Africa, border the Red Sea. **The countries of Yemen and Saudi Arabia border the Red Sea to the east. The Red Sea is bordered by Egypt to the north and west, and by Sudan, Eritrea, and Djibouti to the west**

- **Hence, option (a) is the correct answer.**

Q 50.D

- **Jyotirlingas in India: Recently Prime Minister inaugurated and laid the foundation stone of multiple projects in Somnath.** While inaugurating he said 'From Somnath and Nageshwar in the west to Vaidyanath in the east, from Baba Kedarnath in the north to Shri Rameshwar, at the extreme southern end of India, these 12 Jyotirlingas serve to connect the whole of India.The Somnath Promenade has been developed under PRASHAD (Pilgrimage Rejuvenation and Spiritual, Heritage Augmentation Drive) Scheme.
- There are twelve Jyotirlingas and they are the major places of worship of Shiva. They materialised in a radiant form. The thirteenth pinda is known as the kalpinda. The pinda (Subtle body) which has crossed the limits of kal (Time), is known as kalpinda. The names of twelve Jyotirlingas are:
  - **Somnath Jyotirlinga**
  - **Mallikarjuna Jyotirrlinga**
  - Trimbakeshwar Jyotirlinga
  - Mahakaleshwar Jyotirlinga
  - **Omkareshwar Jyotirlinga**
  - Baidyanath Jyotirlinga
  - Bhimashankar Jyotirlinga
  - Rameshwar Jyotirlinga
  - Nageshwar Jyotirlinga
  - Kashi Vishwanath Jyotirlinga
  - Kedarnath Jyotirlinga
  - Ghrishneshwar Jyotirlinga
- **Badrinath is a part of Char Dhams. It is in Uttarakhand.**
- **Hence, option (d) is the correct answer.**

Q 51.A

- The Convention on the Conservation of Migratory Species of Wild Animals, also known as the Convention on Migratory Species (CMS) or the Bonn Convention, is an international agreement that aims to conserve migratory species throughout their ranges.
- The CMS is the only global, and United Nations-based, intergovernmental organization established exclusively for the conservation and management of terrestrial, aquatic and avian migratory species.
- Species covered by CMS

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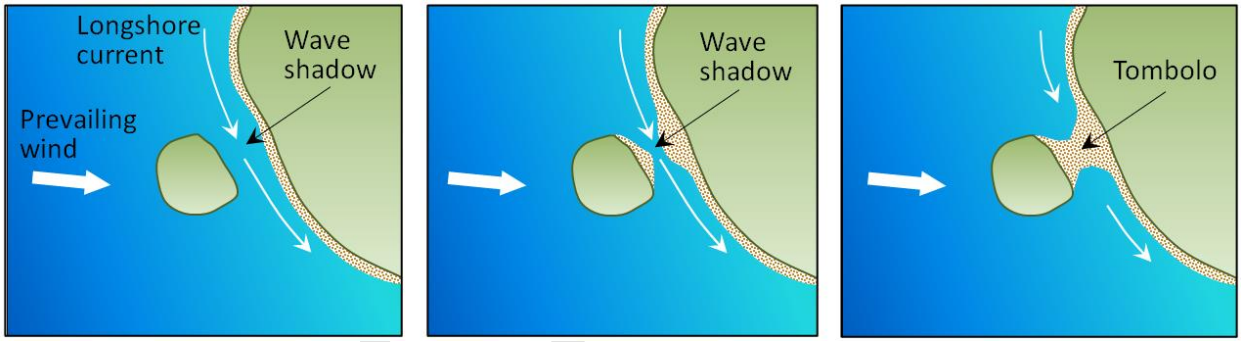
- Mammals, birds, reptiles, fish and one insect are listed on the **Convention's two Appendices**, including many whales and dolphins, bats, gorillas, antelopes, albatrosses, raptors, waterbirds, sharks, sturgeons, marine turtles and the Monarch Butterfly.
  - **Appendix I** lists migratory **species that are endangered**.
  - **Appendix II** lists migratory **species which have an unfavorable conservation status** and which require international agreements for their conservation and management. It also includes species whose conservation status would significantly benefit from the international cooperation that could be achieved by an international agreement. **Hence, statement 2 is not correct.**
- For the purposes of the Convention, a migratory species is one that cyclically and predictably crosses **one or more national jurisdictional boundaries.** Animals that migrate within a country are not covered by the convention. **Hence, statement 1 is correct.**

Q 52.A

- **A tombolo is a Coastal deposition landform** in which an island is attached to the mainland by a narrow piece of land such as a spit or bar. Once attached, the island is then known as a tied island. **Tombolo is a sandy isthmus.** Several islands tied together by bars which rise above the water level are called a **tombolo cluster.** Two or more tombolos may form an enclosure called a lagoon that can eventually be filled with sediment.
- **Formation:** A sand spit is an extended stretch of beach material that projects out to sea and is joined to the mainland at one end. Over time, the spit grows and may extend across a bay and develops a curved hook. **This spit connecting an island to the mainland is called a tombolo.**
- **Formation of Tombolo:**



- **Hence option (a) is the correct answer.**

Q 53.B

- **Recently, the talks between senior military commanders of India and China to find a solution to the 17- month long standoff in the mountains of eastern Ladakh have ended in impasse.**
- **India-China border dispute**:
  - The border between India and China is not clearly demarcated throughout. Along certain stretches of its 3488-km length, there is no mutually agreed **Line of Actual Control.**
  - Border is divided into three sectors, viz. Western, Middle and Eastern.
  - **Western sector: It pertains to the Johnson Line proposed by the British in the 1860s that put Aksai Chin in the then princely state of Jammu and Kashmir. China, however, does not accept Johnson Line.**
  - Middle sector: It is the only one where India and China have exchanged maps on which they broadly agree.
  - Eastern sector: The disputed boundary is over the MacMahon Line.

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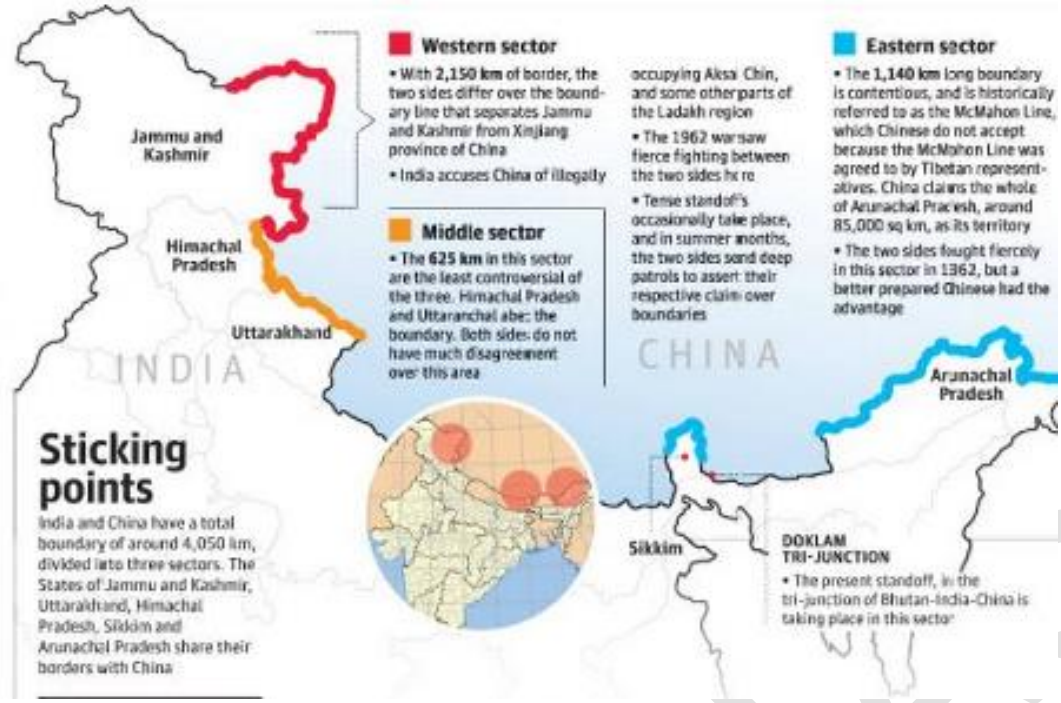

- **Hence, option (b) is the correct answer.**

Q 54.D

- **Option 1 is correct:** If the ocean is nearby equator, its surface waters will be warmer compared to that of surface waters near by polar regions. This is because of incoming solar radiations.
- **Option 2 is correct:** The ocean/sea nearby land receives more heat due to their contact with land, hence oceans in the northern hemisphere are warmer compared to that of southern hemisphere.
- **Option 3 is correct:** Off-shore winds drive away warm surface waters from the coast, resulting in upwelling, whereas onshore winds pile up warm water near the coast, which raises the temperature.
- **Option 4 is correct:** Warm ocean currents raise the temperature in the cold areas while the cold currents decrease the temperature in warm ocean areas.

Q 55.D

- Ocean currents are large masses of surface water that circulate in regular patterns around the oceans.
- Ocean currents are influenced by **two types of forces:**
  - **Primary forces that initiate the movement of water and these are**:
    - **Temperature:** Heating by solar energy causes the water to expand. That is why, near the equator the ocean water is about 8 cm higher in level than in the middle latitudes. This causes a very slight gradient and water tends to flow down the slope.
    - **Wind**: Wind blowing on the surface of the ocean pushes the water to move. Friction between the wind and the water surface affects the movement of the water body in its course. For example, between the equator and the tropics blow the Trade Winds which move equatorial waters polewards and westwards and warm the eastern coast of continents.
    - **Gravity:** Gravity tends to pull the water down the pile and create gradient variation. As warm water is lighter and rises, and cold water is denser and sinks, warm equatorial waters move slowly along the surface polewards, while the heavier cold waters of the polar regions creep slowly along the bottom of the sea equator-wards.
    - **Coriolis force**: It causes the water to move to the right in the northern hemisphere and to the left in the southern hemisphere.
    - **Land:** A land mass always obstructs and diverts a current. For instance, the tip of southern Chile diverts part of the West Wind Drift northwards as the Peruvian Current. Similarly the 'shoulder' of Brazil at Cape Sao Roque, divides the west-flowing equatorial currents into the Cayenne current and Brazilian current.
  - **Secondary forces that influence the currents to flow:**
    - **Salinity:** Differences in water density affect vertical mobility of ocean currents. Water with high salinity is denser than water with low salinity. Denser water tends to sink, while relatively lighter water tends to rise.

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- **Characteristics of Ocean Currents:**
  - Currents are referred to by their **"drift"**.
    - Drift is measured in terms of **knots**. The strength of a current refers to the speed of the current.
  - Usually, the currents are strongest near the surface and may attain speeds over five knots. A fast current is considered strong.
  - At depths, currents are generally slow with speeds less than 0.5 knots.
- **Hence option (d) is the correct answer.**

Q 56.D

- The conditions, which are necessary for the development of typical karst topography, include the following:
  - **Relatively thick massive soluble rock**, i.e., limestone, dolomite, or chalk near the surface.
  - **Marked development of joints**. If the rock is bedded, the beds should be thin.
  - **Considerable relief** (preferably several hundred meters) so that water is capable of circulation to cause typical karst topography.
  - **Moderate to heavy rainfall** to cause solution of rocks. Rainfall becomes carbonate by absorbing atmospheric CO2. Moreover, rainfall encourages growth of plants whose decomposition is an additional source of CO2 to the flowing water. In dry areas the development of karst landscape is inhibited.
- In India, Karst topography is observed in parts of Himalayas, Chhattisgarh basin and coastal areas. Yana is a village located in forests of the Uttara Kannada district of Karnataka, India which is known for the development of karst topography.
- **Hence option (d) is the correct answer.**

Q 57.C

- **From its origin in the Gangotri glacier to the Bay of Bengal, the total length of the Ganges is 2,525 kilometers.** The whole length of the Ganges flows within the boundary of India. Both Brahmaputra and Indus are longer than the Ganges and they are transboundary rivers, i.e., they flow through more than one country.
- **The total length of the Brahmaputra is 3848 km and it flows through China, India, and Bangladesh.** The portion of Brahmaputra that flows through India is only 916 km.
- **Indus flows for 3,180 km and passes through China, India, and Pakistan. The length of the Indus in India is only 1,114 km.**
- Godavari River is a sacred river of central and southeastern India. One of the longest rivers in India, its total length is about 910 miles (1,465 km).
- **Hence option (c) is the correct answer.**

Q 58.A

- The Earth is formed of three concentric layers: the core, the mantle and the crust; these are separated by transition zones called discontinuities. In geological investigations when seismic waves pass between geologic layers with contrasting seismic velocities reflections, refraction, and the production of new wave phases often result. Sudden jumps in seismic velocities across a boundary are known as seismic discontinuities.
- **Mohorovicic Seismic Discontinuity:** The Mohorovicic discontinuity usually referred to as the Moho **defines the lower crust and upper mantle (lithosphere–asthenosphere) boundary.** It is the boundary between the felsic/mafic crust and the denser ultramafic mantle The depth to the Moho beneath the continents averages around 35 km but ranges from around 20 km to 70 km. The Moho beneath the oceans is usually about 7 km below the seafloor. **Hence pair 2 is correctly matched.**
- **Gutenberg Seismic Discontinuity:** The Gutenberg Seismic Discontinuity **(core-mantle boundary - CMB)** of the Earth lies between the planet's silicate mantle and its liquid iron-nickel outer core. This boundary is located at approximately 2891 km depth beneath the Earth's surface. **Hence pair 1 is not correctly matched.**
- **Lehman Siesmic Discontinuity:** Lehmann discontinuity occurs between **Earth's inner and outer core** at a depth of roughly 5,100 km. **Hence pair 3 is not correctly matched.**

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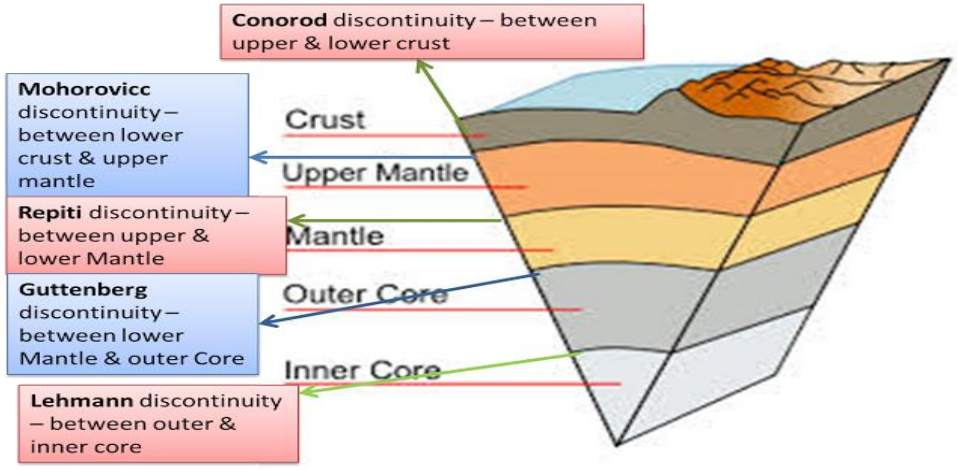

- **Hence option (a) is the correct answer.**

Q 59.B

- Bordering the deserts, away from the Mediterranean regions and in the interiors continents are the temperate grasslands which represent the typical steppe-type climate. Though it lies in the Westerly wind belt, its location in the heart of continents means that they have little maritime influence. **In the northern hemisphere**, **these regions experience a great annual range of temperature because of the enormous distances from the ocean. Hence, statement 1 is correct.**
- In the southern hemisphere due to the maritime influence and less distance from the ocean the annual temperature range is not as extreme
- The annual precipitation is about 20 inches, but this again varies according to the location from 10 inches to 30 inches.
- The vegetation here is mainly grasslands with various names such as:
  - Steppes in Eurasia
  - Prairies in North America
  - Pampas in South America
  - Velds in South Africa
  - **Downs in Australia**
- **Hence, statement 3 is not correct**
- **These grasslands are practically treeless and the grasses are much shorter compared to Savanna grasslands. Trees are very scarce in the steppes, because of the scanty rainfall, long droughts, and severe winters. Hence, statement 2 is correct.**
- These grasslands have been ploughed up for extensive, mechanized wheat cultivation and are now the 'granaries of the world'. Besides wheat, maize is increasingly cultivated in warmer and wetter areas.

Q 60.D

- **Hunting of wild animals:**
  - **Wildlife protection Act 1972 prohibits hunting** of any wild animals specified in **Schedule I to IV** except provided under Sec. 11 and Sec. 12. But under special conditions, the **Chief Wildlife Warden (CWW) can permit** the hunting of scheduled I animals.
  - **Special conditions necessitating animal killing:**
    - If the animal is dangerous to human life. **Hence statement 1 is correct.**
    - If the animal is disabled or injured. **Hence statement 2 is correct.**
    - If the animal is diseased which is beyond the recovery stage. **Hence statement 3 is correct.**
  - The killing of animals in good faith in the defense shall not be considered an offense. The animals killed or wounded under this condition are government property.

Q 61.C

- The northern plains are formed by the alluvial deposits brought by the rivers – the Indus, the Ganga and the Brahmaputra.
- From the north to the south, these can be divided into three major zones: the Bhabar, the Tarai and the alluvial plains. The alluvial plains can befurther divided into the Khadar and the Bhangar.
- Bhabar is a narrow belt ranging between 8-10 km parallel to the Shiwalik foothills at the break-up of the slope. As a result of this, the streams and rivers coming from the mountains deposit heavy materials of rocks and boulders, and at times, disappear in this zone

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- **South of the Bhabar is the Tarai belt,** with an approximate width of 10-20 km where most of the streams and rivers re-emerge without having any properly demarcated channel, thereby, **creating marshy and swampy conditions known as the Tarai.** This has a luxurious growth of natural vegetation and houses varied wildlife. **Hence, statement 3 is correct.**
- The south of Tarai is a belt consisting of old and new alluvial deposits known as the Bhangar and Khadar respectively.
- **The Bhangar is the older alluvium along the river beds forming terraces higher than the flood plain.** The terraces are often impregnated with calcareous concretions known as 'KANKAR'. 'The Barind plains' in the deltaic region of Bengal and the 'bhur formations' in the middle Ganga and Yamuna doab are regional variations of Bhangar. **Hence, statement 1 is correct.**
- The Khadar is composed of newer alluvium and forms the flood plains along the river banks. A new layer of alluvium is deposited by river flood almost every year. **This makes them the most fertile soils of the Ganges. Hence, statement 2 is not correct.**

Q 62.C

- The **periodical rise and fall of the sea level,** once or twice a day, mainly due to the attraction of the sun and the moon, is called a **tide**. The **moon's gravitational pull** to a great extent and to a lesser extent the **sun's gravitational pull**, are the major causes for the occurrence of tides. Another factor is **centrifugal force**, which is the force that acts to counter the balance the gravity. Together, the gravitational pull and the centrifugal force are responsible for creating the two major tidal bulges on the earth.
- **Spring tides:** The position of both the sun and the moon in relation to the earth has direct bearing on tide height. **When the sun, the moon and the earth are in a straight line**, the height of the tide will be higher. These are called spring tides and they occur twice a month, one on full moon period and another during new moon period.
- Once in a month, when the **moon's orbit is closest to the earth (perigee),** unusually high and low tides occur. **During this time the tidal range is greater than normal.** Two weeks later, when the moon is farthest from earth (apogee), the moon's gravitational force is limited and the tidal ranges are less than their average heights.
- If a lunar perigee falls near new or full Moon (spring tides occur), then perigean spring tides of greater tidal range occur. **Hence option (c) is the correct answer.**

Q 63.D

- **Mulching:** Any material applied on the soil surface to check soil moisture evaporation and increase soil water is called mulch. The mulching practices
  - improve soil conservation,
  - decrease the temperature,
  - reduce soil salinity and weeds and
  - improve soil structure. **Hence option (d) is the correct answer.**
- The common mulching materials are crop residues, straw, coir pith, groundnut shell, husk, polythene sheets, small pebbles, etc.
- Mulching materials help to create a structure a structure in soil with plenty of small and larger pores through which rainwater can be easily infiltrated into the soil which reduces soil erosion besides augmenting organic matter in the soil.
- Mulching modifies the microclimate of the soil and the air in which the plant grows.

Q 64.B

- The **Global Climate finance architecture** is channeled through multilateral funds such as the Global Environment Facility and the Climate Investment Funds and as well as increasingly through bilateral channels. Some of the important funds are:
- **Strategic Climate fund**: The Strategic Climate Fund (SCF) **administered by the World Bank** is one of two multi-donor Trust Funds within the Climate Investment Funds (CIFs), serves as an overarching framework for targeted programs piloting new approaches and scaled-up, transformational action on climate change. It includes:
  - Forest Investment Program
  - Pilot program for Climate Resilience
  - Scaling-up Renewable Energy in Low-Income Countries.
- **Clean Technology Fund (CTF)** is the second of two multi-donor Trust Funds within the Climate Investment Funds (CIFs), which promotes scaled-up financing for demonstration, deployment, and

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transfer of low-carbon technologies with significant potential for long-term greenhouse gas emissions savings. It is also administered by the **World Bank**.

- The **Global Climate Change Alliance Plus** (GCCA+) is a **European Union initiative** designed to help the world's most vulnerable countries address climate change. Between its founding in 2008 and 2019, it had funded over 70 projects of national, regional, and worldwide scope in Africa, Asia, the Caribbean, and the Pacific. The initiative helps mainly SIDS and LDCs.
- **Global Energy Efficiency and Renewable Energy Fund** (GEEREF) is a Fund-of-Funds advised by the European Investment Bank Group. It invests in private equity funds which focus on renewable energy and energy efficiency projects in emerging markets. It was initiated by the European Commission in 2006 and launched in 2008 with funding from the European Union, Germany, and Norway, totaling € 112 million.
- **Hence option (b) is the correct answer.**

Q 65.B

- Reducing emissions from deforestation and forest degradation (REDD+) is a mechanism developed by Parties to the United Nations Framework Convention on Climate Change (UNFCCC). **Hence option (b) is the correct answer.**
- Its objective is to create a financial value for the carbon stored in forests by offering incentives for developing countries to reduce emissions from forested lands and invest in low-carbon paths to sustainable development.
- Developing countries would receive results-based payments for results-based actions.
- REDD+ goes beyond simply deforestation and forest degradation and includes the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks.
- REDD+ aims to achieve climate change mitigation by incentivizing forest conservation.
- Complying with the UNFCCC decisions on REDD+, India has prepared its National REDD+ Strategy. The Strategy builds upon existing national circumstances which have been updated in line with India's National Action Plan on Climate Change, Green India Mission, and India's Nationally Determined Contribution (NDC) to UNFCCC.

Q 66.B

- The Manjira river is a tributary of the river Godavari. It passes through the states of Maharashtra, Karnataka, and Telangana. It originates in the Balaghat range of hills near the Ahmednagar district of Maharashtra. **Hence pair 1 is correctly matched.**
- **Bhima River** is a major tributary of the Krishna River and flows through Maharashtra and Karnataka. It originates near Bhimashankar Temple in the Bhimashankar hills in Maharashtra. The pilgrimage town of Pandharpur is also located on this river where it is known as Chandrabhaga. **Hence pair 2 is correctly matched.**
- Bhavani river originates from the Nilgiri Hills of the Western Ghats, enters the Silent Valley National Park in Kerala, and flows back towards Tamil Nadu. It is a tributary of the Kaveri river. **Hence pair 3 is correctly matched.**

Q 67.B

- The New Wildlife Action Plan 2017-2031 (NWAP) sets out the framework for governmental intervention at a time when habitat loss and human-wildlife conflict are becoming increasingly commonplace in the country. The NWAP is the policy framework on which management plans for the protected areas (PAs) will be developed in the coming 15 years. The current plan calls for adopting a landscape approach for wildlife conservation which is an improvement over the previous protected area-centric approach.
- The NWAP states that taking the landscape approach to wildlife conservation can help in looking at the issue of human-wildlife conflicts, which have been increasing in frequency in recent years, in its broader context. While animals keep moving out of PAs, humans keep intruding into wildlife habitats. Thus the traditional approach of looking at conservation within the boundaries of PAs is not as relevant today, and hence the need to look at landscapes in their entirety so that development and conservation can be prioritized simultaneously.
- It also, for the first time, recognizes the concerns related to climate change impacts on wildlife, by integrating actions that need to be taken for their mitigation and adoption in the wildlife management planning process. The thematic focus on climate change is also a new approach. Accepting climate change as a reality, the NWAP plans to promote research specific to climate change, including long-term monitoring and assessment of change in the distribution of vegetation types and ecosystems. Also, there is an emphasis on vulnerability mapping for fires, epidemics, drought, and other environmental stresses that come with the changing climate. **Hence statement 2 is correct.**

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- The action plan launched recently is the third one for the country – the first was from 1983 to 2001, the second from 2002 to 2016. **Hence statement 1 is not correct.**

Q 68.A

- **Amensalism is a kind of population interaction between different species in which one species is harmed or destroyed whereas the other is unaffected.**
- In parasitism interaction two species of plants or animals in which one benefits at the expense of the other, sometimes without killing the host organism.
- Commensalism is a relationship between individuals of two species in which one species obtains food or other benefits from the other without either harming or benefiting the latter.
- In Mutualism interaction confers benefits on both the interacting species. Lichens represent an intimate mutualistic relationship between a fungus and photosynthesising algae or cyanobacteria. Similarly, the mycorrhizae are associations between fungi and the roots of higher plants. The fungi help the plant in the absorption of essential nutrients from the soil while the plant, in turn, provides the fungi with energy-yielding carbohydrates.

Q 69.A

- Dam construction comes at a heavy cost. The reservoir or lake created by a dam may encroach many thousands of acres of forest that once served as a habitat for animals and plants.
- Large darns have contributed to the **extinction of many fish and other aquatic species, the disappearance of birds in floodplains, huge losses of the forest, wetland, and farmland, and the erosion of coastal deltas.**
- The construction of a dam on a river can block or delay upstream fish migration and thus contribute to the decline and even the extinction of species that depend on longitudinal movements along the stream continuum during certain phases of their life cycle. **Hence option 1 is correct.**
- The lack of sediment deposits in the deltas can alter the area habitat to the point that wildlife, such as birds, etc. have begun to disappear. **Hence, option 2 is correct.**
- The construction of dams is one of the major causes of erosion in deltas due to a decrease in sediment discharge from delta-forming rivers because of the dams. **Hence option 3 is correct.**

Q 70.C

- A monsoon is a seasonal change in the direction of the prevailing, or strongest, winds of a region. Monsoons cause wet and dry seasons throughout much of the tropics. Monsoons always blow from cold to warm regions.
- Winter monsoons last from October to April. The dry winter monsoon blows from the northeast. These winds start in the air above Mongolia and northwestern China.
- The Himalayas prevent much of the cool air from reaching places like southern India and Sri Lanka, keeping them warm all year.
- They do not cause rainfall in most parts of India because:
  - **they have little humidity** as they move from land to the sea
  - **due to anticyclonic circulation** (high-pressure center) on land, the possibility of rainfall from them reduces.
- So, most parts of India do not have rainfall in the winter season. Winter monsoons are sometimes associated with droughts.
- **Hence option (c) is the correct answer.**

Q 71.A

- **Lavender:**
  - Lavender is a perennial flowering shrub or herb that bears aromatic small flowers. Lavender is **originally a plant from the Mediterranean region**. It is one of the species from the mint family. A lavender plant usually grows up to a height of around 40cms – 80cms.
  - As these plants grow in a **temperate climate**, thus, in India, lavender is grown colder regions with low rainfall rates. Hilly slopes and mountainous regions in northern India are common regions for lavender growth. **Hill slopes of Himachal Pradesh and various states of Uttar Pradesh** are major growth centers of the lavender herb. **Kashmir valley region** is also a picturesque destination that has lavender fields and invests in cultivation. **Hence pair 1 is not correctly matched.**
  - Southern parts of India do not make up for suitable growing conditions that are needed to cultivate lavender. Yet there are a few farms that engage in this venture to cultivate this precious and rich herb. Srinagar is a famous location with beautiful fields of lavender cultivated for marketing purposes.

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- **Mission Aroma:** Around 500 farmers across villages in Doda district in Jammu had their incomes quadrupled after shifting from maize to lavender cultivation which is being called the purple revolution. It was possible due to initiatives taken under Aroma Mission. The CSIR Aroma Mission is envisaged to bring transformative change in the aroma sector through desired interventions in the areas of agriculture, processing, and product development for fuelling the growth of the aroma industry and rural employment.

- **Tulip Farming.**
  - The crop **requires less than the average temperature range of India** for its optimum growth. The range stays between 20°C to 26°C in the daytime and 5°C to 12°C at night. Tulip tree **requires a humid climate with an evenly distributed annual rainfall** of about 1000 mm to 1200 mm. However, Tulip trees can easily survive in rainfall lower or higher than that. But, the trees are sensitive to water stagnation, and thus excessive rainfall with the absence of proper drainage leading to waterlogging may damage the roots of the plants.
  - Tulip trees **are typically grown in the temperate climatic regions** of the world. It requires short day lengths without bright sunlight and long night lengths for the ideal growth of the bulbs. These trees require very faint sunlight during the critical stages of the growth period or else the bulbs show signs of wilting. Cold climates with high relative humidity are the ideal physical conditions for the growth of plants.
  - Physical conditions like prolonged periods of drought, excessive rainfall, prolonged periods of bright sunlight, and invasion of frost during the winter season are not at all favorable for the growth of the plants.
  - **Kashmir has Asia's largest tulip garden**, which is located close to the famed **Mughal Garden in Cheshmashahi**. Every year, the garden, which is popular among tourists, sees a boom of a million tulips, which are imported from Holland. **Hence pair 2 is correctly matched.**
- **Orchids of India:** A Pictorial Guide, a publication detailing all the species of India was unveiled by the Ministry of Environment, Forest and Climate Change. The 1,256 species or taxa of orchids belong to 155 genera and 388 species are endemic to India.
  - The epiphytic orchids are abundant up to 1800 m above the sea level and their occurrence decreases with the increase in altitude. Terrestrial orchids, which grow directly on the soil, are found in large numbers in the temperate and alpine regions whereas mycoheterotrophic orchids, mostly associated with ectomycorrhizal fungi, are found in temperate regions, or are found growing with parasites in tropical regions.
  - **State-wise distribution**
  - The **highest number of orchid species is recorded from Arunachal Pradesh with 612 species, followed by Sikkim 560 species and West Bengal; Darjeeling Himalayas** have also high species concentration, with 479 species. While north-east India ranks at the top in species concentration, the **Western Ghats have high endemism of orchids.**
  - There are **388 species of orchids, which are endemic to India** of which about one-third (128) endemic species are found in the Western Ghats. The publication points out that Kerala has 111 of these endemic species while Tamil Nadu has 92 of them. Among the 10 biogeographic zones of India, the Himalayan zone is the richest in terms of orchid species followed by Northeast, Western Ghats, Deccan plateau, and Andaman & Nicobar Islands.
  - Another interesting factor is that the **entire orchid family is listed under appendix II of CITES** (Convention on International Trade in Endangered Species of Wild Fauna and Flora) and **hence any trade of wild orchids is banned globally. Hence pair 3 is correctly matched.**

Q 72.C

- The Western Ghats in the west, and the Eastern Ghats in the east border the Deccan Plateau from both the sides.
- The Western Ghats are comparatively higher in elevation. **Hence statement 1 is correct.**
- They are also more continuous than the Eastern Ghats. **Hence statement 2 is not correct.**
- Their average elevation is about 1,500 m with the **height increasing from north to south. Hence, statement 3 is correct.**
- '**Anaimudi'** (2,695 m), **the highest peak of Peninsular plateau is located on the Anaimalai Hills of the Western Ghats.**
- Most of the **Peninsular rivers have their origin** in the Western Ghats.
- **The Eastern Ghats** comprising the **discontinuous and low hills** are **highly eroded** by rivers such as the Mahanadi, the Godavari, the Krishna, the Kaveri, etc.

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- Some of the important ranges include the Javadi hills, the Palkonda range, the Nallamala hills, the Mahendragiri hills, etc.
- The Eastern and the Western Ghats **meet each other at the Nilgiri hills.**

Q 73.A

- **Carbon sequestration refers to the process of long-term removal of carbon from the atmosphere and depositing it in a reservoir.** In simple language, Carbon Sequestration encompasses all forms of carbon storage such as oceans, plants, soil, and underground geologic formations. It has been proposed as a way to slow the atmospheric and marine accumulation of greenhouse gases.
- Carbon Sequestration may be carried out by pumping carbon into 'carbon sinks'- an area that absorbs carbon
  - Natural Sinks: Oceans, Forests, soil, etc
  - **Artificial Sinks: Depleted oil reserves, Unmineable mines, etc. Hence statement 2 is not correct**
- Carbon sequestration is of three types as follows:
  - **Terrestrial Carbon Sequestration:** Indirect sequestration whereby ecosystems (e.g., forests, agricultural lands, and wetlands) are maintained, enhanced or manipulated to increase their ability to store carbon.
  - **Geologic Sequestration:** CO_2 can be stored, including oil reservoirs, gas reservoirs, unminable coal seams, saline formations, and shale formations with high organic content. These formations have provided natural storage for crude oil, natural gas, brine, and CO_2 over millions of years. Geologic sequestration techniques would take advantage of these natural storage capacities. **The Hydrodynamic Trapping of Carbon dioxide aims to store carbon dioxide for the long term, wherein it gets trapped under low permeability cap rock. Hence statement 1 is correct**
  - **Ocean Carbon Sequestration:** There are two approaches for oceanic carbon sequestration which take advantage of the oceans' natural processes. One approach is to enhance the productivity of ocean biological systems (e.g., algae) through fertilization. Another approach is to inject CO_2 into the deep ocean.

Q 74.C

- **Lithification**
  - Rocks (igneous, sedimentary and metamorphic) of the earth's surface are exposed to various denudational agents and are broken up into various sizes of fragments. Such fragments are transported by different exogenous agencies and deposited. These deposits through compaction turn into rocks. **Hence option (c) is the correct answer.**
  - Lithification is a process of porosity destruction through compaction and fermentation.
  - In many sedimentary rocks, the layers of deposits retain their characteristics even after lithification. Hence, we see a number of layers of varying thickness in sedimentary rocks like sandstone, shale etc
- **Recrystallization**
  - It is a metamorphic process that occurs under temperature and pressure where atoms of a mineral are reorganized by diffusion and/or dislocation glide. The mineral composition may remain unchanged.
  - Limestone is a sedimentary rock that undergoes metamorphic recrystallization to form marble, and clays can recrystallize to muscovite mica.
- **Foliation**
  - It refers to repetitive layering in metamorphic rocks. Each layer can be as thin as a sheet of paper, or over a meter in thickness.
  - The word comes from the Latin folium, meaning "leaf", and refers to the sheet-like planar structure.
  - It is caused by shearing forces or differential pressure.
- **Exfoliation**
  - It describes the peeling away of sheets of rock millimeters to meters in thickness from a rock's surface due to a range of physical and chemical processes during exhumation and weathering.

Q 75.D

- **Recently, Prime Minister of India has gifted a Meenakari chess set to the US Vice President.**
- The art of Meenakari, or Meena Kari or Mina Kari is an art of painting or embellishing various types of metals with bright colors in dramatic motifs of birds, flowers and leaves. There are various kinds of Meenakari work depending on whether the enamel is to appear opaque, transparent or translucent. **Hence, statement 1 is correct.**

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- The Mughals brought the art of 'minakari' and 'kundan' to the country. Varanasi, in Uttar Pradesh, is one of the oldest cities in India and has a very rich culture and history. It was the capital of the ancient Kashi region. The present meenakar in Varanasi claimed that the position of the art of meenakari was prosperous till about hundred years ago. Banaras Gulabi Meenakari Craft has got GI certificate in 2015. **Hence, statement 2 is correct.**
- Raja Man Singh of Mewar is regarded as the patron of the Meenakari art in 16th century Jaipur. Since then Jaipur is famous for meenakari on jewellery, Kota for meenkari done on glass and Bikaner and Pratapgarh ara also famous for this art form. However, in Haryana this art form is relatively not known. **Hence, statement 3 is not correct.**

Q 76.A

- **Addu Atoll: Recently, the Union Cabinet, chaired by Prime Minister Narendra Modi, cleared the proposal for opening the consulate in the Addu City of the Maldives to augment the country's diplomatic presence in the Indian Ocean archipelago. Hence pair 1 is correctly matched.**
  - Addu Atoll, also known as Seenu Atoll, is the southernmost atoll of the Maldives.
  - Apart from its strategic location in the Indian Ocean, Addu is the second-largest city in the Indian Ocean archipelago, home to over 30,000 people.
- **Al-Aqsa Mosque: Recently violent clashes erupted between Israeli forces and Palestinians at the famous Al-Aqsa mosque in Jerusalem. Hence pair 2 is not correctly matched.**
  - Al-Aqsa Mosque, located in the Old City of Jerusalem, is the third holiest site in Islam. The mosque was built on top of the Temple Mount, known as the Al Aqsa Compound or Haram esh-Sharif in Islam, several decades after Prophet Muhammad's death.
- **Mount Nyiragongo: Recently the eruption of Mount Nyiragongo, an active volcano in the Democratic Republic of the Congo (DRC), led to the deaths of at least 30 people. Hence pair 3 is not correctly matched.**
  - Mount Nyiragongo is part of the Virunga volcanic chain and owes its existence to the activity of the African Great Rift.
  - The peculiar location of Mount Nyiragongo on a highly active segment of the African rift favours a quick ascent of magma (molten material) from about 100 km beneath the Earth's surface and extreme fluidity of lava. That is one major reason of concern, as the lava flowing on the upper volcano flanks can be extremely fast and impossible to escape.

Q 77.B

- Twenty-five species of marine mammals are found in Indian waters and belong to two orders Cetacea and Sirenia. Sea cow Dugong dugon occurs in the nearshore waters of the Gulf of Mannar, the Gulf of Kachchh, and the Andaman and Nicobar Islands. One species belonging to the order Sirenia, namely the dugong, and 30-34 species of cetaceans (dolphins, whales, and porpoises) including the Ganges river dolphin, are found in the waters of the Indian subcontinent. **Hence statement 1 is not correct.**
- All species of marine mammals along the Indian coasts are protected under the Indian (Wildlife) Protection Act (1972). **Hence statement 2 is correct.**
- Porpoises are a group of fully aquatic marine mammals, all of which are classified under the family Phocoenidae. There are seven extant species of porpoise. They are small toothed whales that are very closely related to oceanic dolphins. Porpoise teeth are spade-shaped whilst dolphins are conical. A dolphin has a hooked or curved dorsal fin (except for those species that don't have a dorsal fin) whereas a porpoise has a more triangular dorsal fin, and generally speaking, dolphin bodies are leaner, although porpoises' are a little more chunky. Dolphin is a common name of aquatic mammals within the infraorder Cetacea.
- The dugong is a medium-sized marine mammal. It is one of four living species of the order Sirenia, which also includes three species of manatees. It is the only living representative of the once-diverse family Dugongidae; its closest modern relative, Steller's sea cow, was hunted to extinction in the 18th century.

Q 78.C

- **Sojat Mehndi (Henna):** Sojat Mehndi **from Rajasthan**, has been awarded the geographical indication (GI) tag. Sojat Mehendi, originating from Mehendi leaves grown in Sojat, is naturally cultivated using rainwater. **Hence pair 1 is correctly matched.**
- **Chyura Oil:** Recently, **Uttarakhand's seven** indigenous products were given the GI tag. These are:
  - Tejpatta, the first state product of Uttarakhand to get GI Tag.
  - The seven products which got the GI tag are:
  - **Kumaon's Chyura Oil. Hence pair 2 is not correctly matched.**
  - Munsiyari Rajma

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- Bhotia dann
- Aipan
- Ringal Craft
- Copper products
- Thulma

- **Sirarakhong Chili:** The Sirarakhong village **in Manipur's Ukhrul district** celebrates Hathei Phanit festival, dedicated to their indigenous, organically-grown Sirarakhong chili. The Sirarakhong Hathei chili, in recent years, has become one of the most sought-after chilies of Manipur. It is organically grown in the hills surrounding Sirarakhong village in Ukhrul and can grow over eight inches in length. **Hence pair 3 is not correctly matched.**
- **Judima:** Judima, the wine brewed **by the Dimasa community in Assam,** has been awarded the GI tag. This wine made from rice and a certain herb is the first beverage from the northeast to earn this label. **Hence pair 4 is correctly matched.**

Q 79.D

- **Mediterranean Climate (Western Margin Climate):** Entirely confined to the western portion of continental masses, between 30° and 45° north and south of the equator.
- The basic reason for this type of climate is the **shifting of the westerly wind belts.**
  - In summer, the Westerlies belt is shifted a little polewards. Rain bearing winds are therefore not likely to reach the Mediterranean land.
  - The Mediterranean lands receive most of their precipitation in winter when the Westerlies shift equator wards.
- Hence it is called '**winter rain climate**'. The rain comes in **heavy showers and only on a few days with bright sunny** periods between them. This is another characteristic feature of the Mediterranean winter rain.
- **Spatial spread:** Regions around the Mediterranean Sea, central Chile. California, the south-western tip of Africa, southern Australia, and south-west Australia (Swanland).
- **Orchard farming:**
- The Mediterranean lands are also known as the **world's orchard lands.**
- The fruit trees have **long roots** to draw water from considerable depths during the **long summer drought. Hence, statement 2 is correct.**
- **The thick, leathery skin** of the citrus fruits **prevents excessive transpiration. Hence, statement 3 is correct.**
- The **long, sunny summer enables the fruits to be ripened and harvested. Hence, statement 1 is correct.**
- Olives, grapes, citrus and many nut trees like chestnuts, walnuts, hazelnuts and almonds are grown.

Q 80.A

- Meanders refer to the regular sinuous curves, bends, loops turns in the channel of a river. Each bend of a meander loop has two types of slopes of valley sides.
  - **One side is characterized by a concave slope which is subjected to erosion resulting in the formation of vertical cliffs. This side of the meander loop is called a cliff-slope side.**
  - **The other side of the meander loop is characterized by a convex slope where deposition of eroded material and other silt occurs. It has a gentle slope and is called a slip-off slope.**
- **Thus meandering of rivers is a result of both erosional and depositional work.**
- **Hence, statement 1 is correct.**
- Meandering of rivers is dependent on many factors such as lithological characteristics, topographical characteristics, general slope, vegetation, annual precipitation, etc.
- **Himalayan rivers have well-developed meandering courses compared to Peninsular rivers because bedrocks of Himalayan rivers are soft, sedimentary, and easily erodible whereas bedrocks of Peninsular rivers are hard, resistant, and not easily erodible as is the nature of basaltic Deccan plateau on which they flow.**
- **Also, Himalayan rivers are perennial in nature whereas peninsular rivers are not. Hence, there is no continuous erosion and deposition like in the case of Himalayan rivers.**
- **Hence, statement 2 is not correct.**

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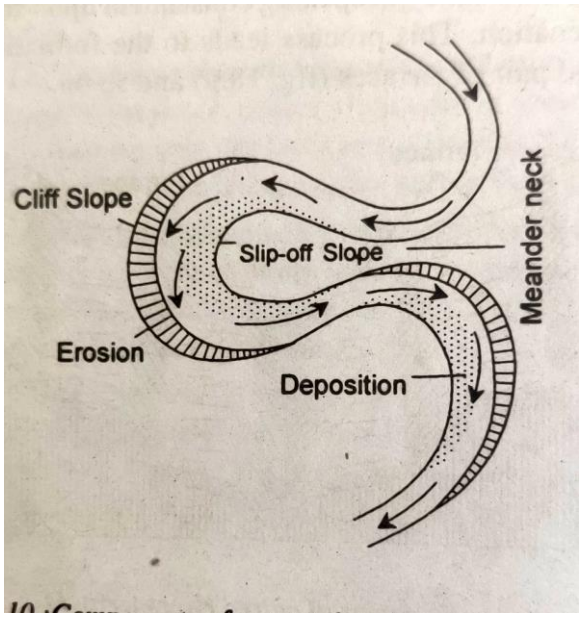

Q 81.A

- The National Green Tribunal has been established on 18.10.2010 under the National Green Tribunal Act 2010 for effective and expeditious disposal of cases relating to environmental protection and conservation of forests and other natural resources including enforcement of any legal right relating to the environment and giving relief and compensation for damages to persons and property and for matters connected therewith or incidental thereto.
- **Statement 1 is correct:** The National Green Tribunal Act, 2010 under Section 19 gives the Tribunal power to regulate its own procedure. Additionally, the Tribunal is **not bound by the procedure under the Code of Civil Procedure, 1908** or the Indian Evidence Act, 1872 and is guided by principles of natural justice. However, the Tribunal is vested with the powers of a civil court under the Code of Civil Procedure for discharging its functions.
- The Tribunal has framed its own rules since applications to the tribunal are inherently distinct from civil suits or writ petitions. The Tribunal identifies necessary parties as required under necessary statutes mentioned in Schedule I of the NGT Act, 2010 and requires them to promptly respond by email which saves time and cost. Notice is not issued mechanically to every party named as respondents in the application.
- **Statement 2 is not correct:** The Tribunal is mandated to make and endeavor for disposal of applications or appeals **finally within 6 months** of the filing of the same. Initially, the NGT is proposed to be set up at five places of sittings and will follow circuit procedure for making itself more accessible. New Delhi is the Principal Place of Sitting of the Tribunal and Bhopal, Pune, Kolkata, and Chennai shall be the other four places of sitting of the Tribunal.

Q 82.A

- Industries are not evenly distributed in the country. They tend to concentrate on certain locations because of the favorable locational factors.
- **Major industrial regions of the country are given below:**
  - **Mumbai-Pune Region**
  - Hugli Region
  - Bengaluru-Tamil Nadu Region
  - Gujarat Region
  - **Chotanagpur Region**
  - **Vishakhapatnam-Guntur Region**
  - Gurugram-Delhi-Meerut Region, and
  - Kollam-Thiruvananthapuram Region
- **Hence option (a) is the correct answer.**

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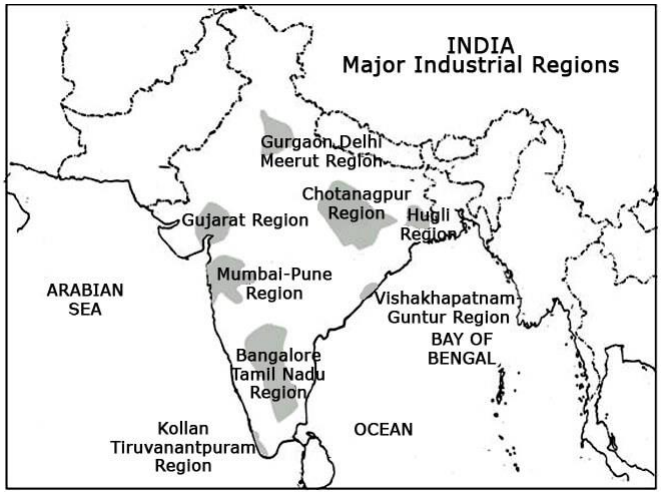

- **Minor Industrial Regions (13)**:
  - **Ambala-Amritsar**
  - Saharanpur-Muzzaffarnagar-Bijnor
  - Indore-Dewas-Ujjain
  - Jaipur-Ajmer
  - Kolhapur-South Kannada
  - Northern Malabar
  - Middle Malabar
  - Adilabad-Nizamabad
  - Allahabad-Varanasi-Mirzapur
  - Bhojpur-Munger
  - Bilaspur-Korba
  - Durg-Raipur
  - Brahmaputra Valley

Q 83.D

- Three major geological events in the distant past have shaped the present drainage systems of Peninsular India:
  - **Subsidence of the Western flank of the Peninsula** led to its submergence below the sea during the early tertiary period. Generally, it has disturbed the symmetrical plan of the river on either side of the original watershed. **Hence, option (1) is correct.**
  - **The upheaval of the Himalayas** when the northern flank of the Peninsular block was subjected to subsidence and the consequent trough faulting. The Narmada and The Tapi flow through faults and fill the original cracks with their detritus materials. Hence, there is a lack of alluvial and deltaic deposits in these rivers.
  - **Slight tilting of the Peninsular block from northwest to the southeastern direction** gave orientation to the entire drainage system towards the Bay of Bengal during the same period.
- **Hence, option (d) is the correct answer.**

Q 84.D

- Salinity changes with the depth of the oceans, but the way it changes depends upon the location of the sea. Salinity at the surface increases by the loss of water to ice or evaporation or decreased by the input of freshwaters, such as from the rivers. Salinity at depth is very much fixed because there is no way that water is 'lost, or the salt is 'added.' There is a marked difference in the salinity between the surface zones and the deep zones of the oceans. The lower salinity water rests above the higher salinity dense water. **Salinity, generally, increases with depth and there is a distinct zone called the halocline, where salinity increases sharply. Hence statement 1 is not correct**
- Salinity is the term used to define the total content of dissolved salts in seawater. It is calculated as the amount of salt (in gm) dissolved in 1,000 gm (1 kg) of seawater. It is usually expressed as parts per thousand (o/oo) or ppt. Salinity is an important property of seawater. The salinity of 24.7 o/oo has been considered as the upper limit to demarcate 'brackish water'. **The maximum amount of salt in Oceans is common salt i.e. Sodium Chloride,** which is followed by Magnesium Chloride. **Hence statement 2 is correct**

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- The **horse latitudes are subtropical regions known for calm winds and little precipitation. The horse latitudes are regions located at about 30 degrees north and south of the equator.** These latitudes are characterized by calm winds and little precipitation. As a general rule, the salinity of the oceans decreases on both sides from the tropic of Cancer. This is attributed to the high occurrence of precipitation on the equator. The highest **salinity of the seawater has been recorded between 20°N to 40°N. Hence statement 3 is not correct**

Q 85.B

- **The term 'Askot' is derived from 'Assi Kot' or Eighty Forts, many of which are located in Nepal. Askot Wildlife Sanctuary is one of India's most famous wildlife sanctuaries and is rightly known as the 'green paradise of India.**
- Askot Wildlife Sanctuary, with an altitude range from 600 m (2,000 ft) to 6,905 m (22,654 ft) is located in the Pithoragarh district of Kumaon.
- It lies between 29°46'45" to 30°27'45"N latitude and 81°01'53" to 80°16'25"E longitude (central coordinate:30°07′15″N 80°39′09″E) and covers almost 600 km2 (230 sq mi). The River Kali forms the international boundary and separates it from Nepal in the east and to the west, it is bounded by West Almora Forest Division, to the north by Tibet, and the south by Pithoragarh Forest Division.
- The famous peaks: Panchchuli, Neodhura, Naukana, Chhiplakot, Najirikot;
- the passes: Lipulekh, Lumpiyalekh, and Mankshang lekh: and
- the religious places: Bhanar, Chiplakot, Niirikot, Panchachuli, Kalapani, and Chota Kailash (Adi Kailash) form a part of the Sanctuary.
- The Dhauli and Ikli rivers originate from the area and Gori Ganga passes through it.
- The forest blocks: Rugling, Jyotigad, Hiragumarhi, Duk, Sobla, East Ghandhura, West Ghandhura, Maitham, Akla and Daphia are biodiversity-rich habitats of the Sanctuary. **Hence option (b) is correct answer.**

Q 86.A

- **The trophic state** is defined as the total weight of the biomass in a water body at a specific location and time. The trophic state is the biological response for nutrient additions to the water bodies. The amount of nitrogen, phosphorus and other biological useful nutrients dissolved in the waters determines the trophic state of the lake. The water trophic is used to estimate its biological condition.
- The trophic state of the lake is classified into three namely - Oligotrophic, Mesotrophic, and Eutrophic Lakes. When the lake has higher trophic indices may be considered as hyper-oligotrophic or hypereutrophic.
- **Oligotrophic lake:**
  - An oligotrophic lake is one that has **relatively low productivity** due to the **low nutrient content** in the lake. They are rich in oxygen throughout and have good water clarity.
  - The waters of these lakes are usually quite clear due to the limited growth of algae in the lake. The waters of such lakes are of **high-drinking quality.**
  - Such lakes support aquatic species who require **well-oxygenated**, cold waters such as lake trout. Oligotrophic lakes are usually found in the cold regions of the world where the mixing of nutrients is rare and slow due to the low temperatures of the lake waters.
  - **Hence option(a) is the correct answer.**

Q 87.B

- **Statement 1 is not correct and statement 2 is correct**: Agriculture accounts for most of the surface and groundwater utilization, it accounts for 89 percent of the surface water and 92 percent of the groundwater utilization. While the share of the industrial sector is limited to 2 percent of the surface water utilization and 5 percent of the ground-water, the share of the domestic sector is higher (9 percent) in surface water utilization as compared to groundwater. The share of the agricultural sector in total water utilization is much higher than in other sectors.
- Rain-fed areas contributed significantly to the country's food production. They account for 89 percent of millet production, 88 percent of pulses, 73 percent of cotton, 69 percent of oilseeds, and 40 percent rice production in the country. Besides, rain-fed areas support 64 percent of cattle, 74 percent of sheep, and 78 percent of the goat population in the country. **About 61 percent of India's farmers rely on rain-fed agriculture and 55 percent of the gross cropped area is under rain-fed farming.** India ranks first in rain-fed agriculture, both in the area and the value of produce.

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Q 88.B

- In a report, the G7 Economic Resilience Panel demands a radically different relationship between the public and private sectors, to create a sustainable, equitable and resilient economy.
- Since 1989, **Washington Consensus** defined the rules of the game for the global economy. The alternative is the recently proposed "**Cornwall Consensus**".
- The Washington Consensus minimized the state's role in the economy and pushed an aggressive free-market agenda of deregulation, privatization, and trade liberalization.
- However, the Cornwall Consensus would invert these imperatives by revitalizing the state's economic role, it would allow to pursue societal goals, build international solidarity, and reform global governance in the interest of the common good.
- **Hence, option (b) is the correct answer.**

Q 89.C

- **Recent Context:** According to rating agency ICRA the first phase of the ambitious Bharatmala Pariyojana (BMP) that was scheduled for completion in 2021-22 is now likely to get completed by 2025-26, rating agency ICRA
- **Bharatmala Pariyojana is an umbrella project for the highways sector with Phase I from 2017 to 2022. A** total of around 24,800 km are being considered in Phase I. In addition, Phase I also includes 10,000 km of balance road works under National Highways Development Project. Bharatmala Pariyojana subsume all existing highway projects including the flagship National Highways Development Project (NHDP), launched in 1998. Bharatmala Pariyojana consists of 6 components:
  - **Economic corridors development**
  - Inter-corridor & feeder roads
  - National Corridors Efficiency improvements:
  - **Border & International connectivity roads**
  - **Coastal & port connectivity roads**
  - **Expressways**
- **Additional Information-About ICRA:**
  - ICRA Limited formerly Investment Information and Credit Rating Agency of India Limited was set up in 1991 by leading financial/investment institutions, commercial banks, and financial services companies as an independent and professional investment Information and Credit Rating Agency. The international Credit Rating Agency Moody's Investors Service is ICRA's largest shareholder).

Q 90.C

- India is endowed with fairly abundant resources of iron ore. It has the **largest reserve** of iron ore in Asia. The two main types of ore found in our country are **haematite and magnetite.**
- About **95% of total reserves** of iron ore is located in the States of Odisha, Jharkhand, Chhattisgarh, Karnataka, Goa, Telangana, Andhra Pradesh and Tamil Nadu.
- In **Odisha**, iron ore occurs in a series of hill ranges in Sundergarh, **Mayurbhanj** and Jhar.
- **Jharkhand** has some of the oldest iron ore mines and most of the iron and steel plants are located around them.
  - Most of the important mines such as Noamundi and Gua are located in Poorbi and Pashchimi Singhbhum districts.
  - This belt further extends to **Durg**, Dantewara and Bailadila. Dalli, and Rajhara in Durg are the important mines of iron ore in the country.
- In **Karnataka**, iron ore deposits occur in Sandur-Hospet area of Ballari district, Baba Budan hills and Kudremukh in Chikkamagaluru district and parts of Shivamogga, Chitradurg and Tumakuru districts.
- The districts of Chandrapur, Bhandara and **Ratnagiri** in **Maharashtra**, Karimnagar and Warangal district of **Telangana**, Kurnool, Cuddapah and Anantapur districts of **Andhra Pradesh**, Salem and Nilgiris districts of **Tamil Nadu** are other iron mining regions.
- **Hence option (c) is the correct answer.**

Q 91.A

- All the member states of the **United Nations** and **other states** met at the **World Conference on Natural Disaster Reduction in the city of Yokohama**, Japan from May 23rd- 27th 1994.
  - The conference adopted the Yokohama strategy and declared the decade 1990-2000 as the International Decade for Natural Disaster Reduction (**IDNDR).**
  - **United Nations Office for Disaster Risk Reduction (UNISDR) is the successor to the secretariat of IDNDR and was created in 1999 to implement UN Disaster Risk Reduction strategy.**

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- **The Hyogo Framework for Action (HFA):**
  - In January 2005, 168 Governments adopted a 10-year plan to make the world safer from natural hazards at the World Conference on Disaster Reduction, held in Kobe, Hyogo, Japan.
  - It is a 10-year plan (2005-2015) to make the world safer from natural hazards. Priorities such as, Disaster risk reduction, identification, assessment through legal and policy frameworks, disaster preparedness and use of innovation was adopted.
- **The Sendai Framework for Disaster Risk Reduction 2015-2030, is the successor instrument to the Hyogo Framework.**
  - It is a **non-binding agreement**, which the signatory nations, **including India,** will attempt to comply with on a voluntary basis.
- There are three international agreements within the context of the post- 2015 development agenda. These are:
  - The Sendai Framework.
  - Sustainable Development Goals 2015-2030
  - The Paris agreement (COP 21) on Climate Change.
- **UNDRR (formerly UNISDR) is the United Nations focal point for disaster risk reduction.**
  - UNDRR oversees the implementation of the Sendai Framework for Disaster Risk Reduction 2015-2030, supporting countries in its implementation, monitoring and sharing what works in reducing existing risk and preventing the creation of new risk.
  - As the United Nations Office for Disaster Risk Reduction, UNDRR brings governments, partners and communities together to reduce disaster risk and losses to ensure a safer, more sustainable future.
- **Hence option (a) is the correct answer.**

Q 92.D

- The **International Energy Agency (IEA), was set up as an autonomous agency in 1974 by member countries of the OECD** in response to the mid-1970s oil crisis. **Hence, statement 2 is correct.**
- The IEA forms an energy forum for 21 industrialized nations with the objective of improving the world's energy supply and demand structure.
- It also aims to maintain and improve a system for coping with oil supply disruptions, operate a permanent information system on the international oil market and other sources of energy and to approach energy developments in a global context through international cooperation.
- IEA's work spans a variety of programs and initiatives, helping ensure energy security, tracking clean energy transitions, collecting data, or providing training around the world. **Hence, statement 1 is correct.**
- **Recently, India has been invited to become its full-time member.** This invitation is natural corollary to the 'India-IEA strategic partnership' which was inked in January 2021 to strengthen mutual cooperation in global energy security, stability and sustainability. India joined IEA in 2017 as an associate member. **Hence, statement 3 is correct.**

Q 93.A

- The **Gulf Stream is deflected eastwards under the combined influence of the Westerlies and the rotation of the Earth. This reaches Europe as the North Atlantic Drift.** Since this drift carries warm equatorial water into the high latitudes of Europe, it keeps the coasts of the North Sea frost-free facilitating suitable conditions for ports. From the North Atlantic, the drift fans out into three directions: eastwards to Britain, northwards to the Arctic, and southwards along the Iberian coast, as the Canaries current. **Hence statement 1 is correct**
- **The Sargasso Sea is a region of the Atlantic Ocean bounded by four currents forming an ocean gyre.** Unlike all other regions called seas, it has no land boundaries. It is distinguished from other parts of the Atlantic Ocean by its characteristic brown Sargassum seaweed and often calm blue water. **The** sea is bounded on the west by the **Gulf Stream,** on the north **by the North Atlantic Current,** on the east **by the Canary Current,** and on the south by the **North Atlantic Equatorial Current, the four together forming a clockwise-circulating system of ocean currents termed the North Atlantic Gyre. Hence statement 2 is not correct.**

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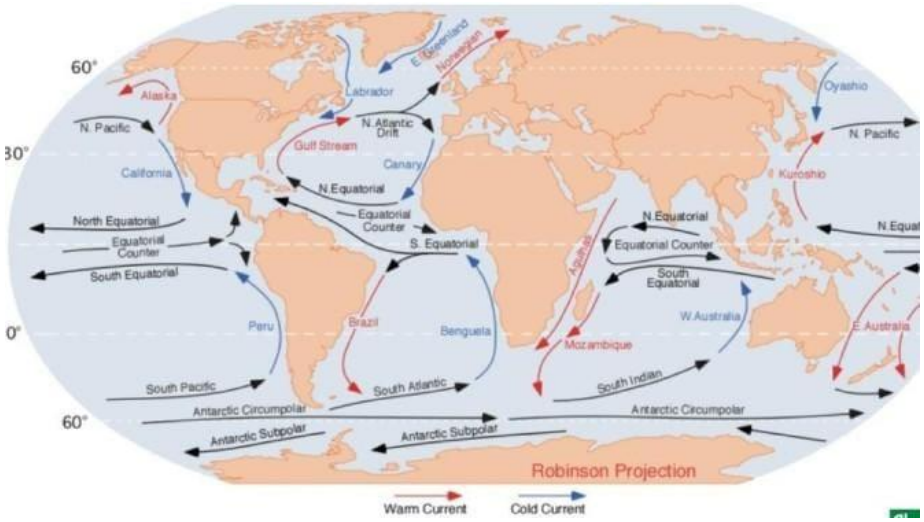

Q 94.A

- Winter season in India extends roughly from November to March. Winter Season is characterized by the following weather phenomenon:
  - Development of high pressure in the region lying to the north of the Himalayas. **Hence, statement 1 is correct.**
  - This centre of high pressure gives rise to the flow of air at the low level from the north towards the Indian subcontinent, south of the mountain range. The surface winds blowing out of the high pressure centre over Central Asia reach India in the form of a dry continental air mass. **Hence, statement 2 is correct.**
  - All of Western and Central Asia remains under the influence of westerly jet streams winds along the altitude of 9-13 km from west to east. Southern branch of the jet stream exercises an important influence on the winter weather in India
  - The western cyclonic disturbances enter the Indian subcontinent from the west and the northwest during the winter months.
  - Tropical cyclones originate over the Bay of Bengal and the Indian ocean.
  - An easterly jet stream flows over the southern part of the Peninsula in Summer month of June. **Hence, statement 3 is not correct.**

Q 95.B

- **Recently, Reserve Bank of India (RBI) has announced opening of the third cohort for the Regulatory Sandbox (RS).** The **theme for the third cohort will be MSME lending. The first cohort started with the theme of 'retail payments' in 2019 and the second cohort with the theme of 'cross border payments' in 2020**.
- RS refers to the live testing of new products or services in a controlled/test regulatory environment for which regulators may (may not) permit certain regulatory relaxations for the limited purpose of the testing.
- **Hence, option (b) is the correct answer.**

Q 96.C

- **The International Solar Alliance (ISA) is an alliance of countries initiated by India, most of them being sunshine countries, which lie either completely or partly between the Tropic of Cancer and the Tropic of Capricorn.** The primary objective of the alliance is to work for efficient consumption of solar energy to reduce dependence on fossil fuels.
- **The initiative was launched by France and India** at the United Nations Climate Change Conference in Paris in November 2015. **The framework agreement of the International Solar Alliance opened for signatures in Marrakech, Morocco in November 2016, for all member countries of the UN, and 200 countries have joined.**
- **ISA is headquartered in Gurugram, India.**
- India and France were re-elected as President and Co-President of the International Solar Alliance (ISA) at the third assembly of the ISA.
- In the wake of the global pandemic, ISA responded by setting up ISA CARES, an initiative dedicated to the deployment of solar energy in the healthcare sector in LDC/SIDS ISA Member countries has been set up in wake of a global pandemic. **Hence option (c) is the correct option.**

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Q 97.C

- **Recently, Ministry of Heavy Industries notifies Production Linked Incentive (PLI) scheme for automobile and auto components.**
- PLI Schemes is announced across 13 key sectors, to create national manufacturing champions and generate employment opportunities for the country's youth. These sectors are:

Sector and budget outlay	Closed	Open	To be announced	Announced	Evaluation stage
Mobile manufacturing and specified electronic components ***(~US$ 4.9 billion)***	✓				
Critical key starting materials/drug intermediaries and active pharmaceutical ingredients ***(~US$ 0.9 billion)****	✓				
Manufacturing of medical devices ***(~US$ 0.5 billion)****	✓				
Electronic/technology products (IT hardware) ***(~US$ 1 billion)***	✓				
Pharmaceutical drugs ***(~US$ 2 billion)***	✓				
White goods ***(~US$ 0.8 billion)***		✓			
High efficiency solar PV modules ***(~US$ 0.6 billion)***		✓			
Specialty steel ***(~US$ 0.8 billion)***		✓			
Telecom and networking products ***(~US$ 1.6 billion)***					✓
Food products ***(~US$ 1.5 billion)***					✓
Advanced chemistry cell (ACC) battery ***(~US$ 2.4 billion)***			✓		
Automobiles and auto components ***(~US$ 7.6 billion)***				✓	
Textile products: MMF segment and technical textiles ***(~US$ 1.4 billion)***				✓	

*These schemes have now been reopened for applications till 31 August 2021, for specific products

- **Hence, option (c) is the correct answer.**

Q 98.B

- **Statement 1 is not correct:** Black soil covers most of the Deccan Plateau which includes parts of Maharashtra, Madhya Pradesh, Gujarat, Andhra Pradesh and some parts of Tamil Nadu.
- **Statement 3 is correct:** In the upper reaches of the Godavari and the Krishna, and the northwestern part of the Deccan Plateau, the black soil is very deep. These soils are also known as the '**Regur Soil' or the 'Black Cotton Soil**'.
- **Statement 2 is correct:** The black soils are generally clayey, deep and impermeable. They swell and become sticky when wet and shrink when dried. So, during the dry season, these soil develop wide cracks. Thus, there occurs a kind of 'self ploughing'. Because of this character of slow absorption and loss of moisture, the black soil retains the moisture for a very long time, which helps the crops, especially, the rain fed ones, to sustain even during the dry season.
- Chemically, the black soils are rich in lime, iron, magnesia and alumina. They also contain potash. But they lack in phosphorous, nitrogen and organic matter. The colour of the soil ranges from deep black to grey

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Q 99.C

- **Tornadoes are small but very violent** tropical and sub tropical cyclones in which air is spiralling at a tremendous speed of as much as 50 mph.
- A tornado appears as a dark funnel cloud 2550 to 1400 meters in diameter.
- Tornadoes are most frequent in spring but can occur at almost any time. **Tornadoes are most typical of the USA and occur mainly in the Mississippi basin.**
- From severe thunderstorms sometimes spiralling wind descends like a trunk of an elephant with great force, with very low pressure at the centre, causing massive destruction on its way.
- Such a phenomenon is called a tornado. Tornadoes generally occur in middle latitudes. **The tornado over the sea is called water spouts.**
- These violent storms are the manifestation of the atmosphere's adjustments to varying energy distribution. The potential and heat energies are converted into kinetic energy in these storms and the restless atmosphere again returns to its stable state.
- **The biggest differences between hurricanes and tornadoes are how big they are and how long they last.**
- **Hurricanes are typically hundreds of miles in diameter**, with high winds and heavy rains over the entire region. **Tornadoes are typically no more than a few hundred feet wide.**
- **Tornadoes usually last no more than a few minutes whereas Hurricanes can last for days or even weeks.**
- **Hurricane is a storm**—or, more precisely, a storm system that's often made up of multiple thunderstorms. **A tornado**, on the other hand, could be described as a single element of a **single storm.**
- Unlike hurricanes, tornadoes are exclusive to land. Hurricanes are essentially massive, spinning formations of multiple thunderstorms, while tornadoes are formed from a wind vortex from the hot, high-pressure wind of a single thunderstorm over land. Tornadoes can form from the thunderstorms that make up a hurricane, but they more commonly formed from single thunderstorms.
- **Hence option (c) is the correct answer.**

Q 100.B

- **Recently, prior to the meeting between the Prime Minister of India and the US President, the US President has issued the statement that India should have a permanent seat in UN Security Council (UNSC).**
- There have been consistent demands for the reform of the UNSC as the world order has changed a lot since 1945 when UNSC came into being.
- **India, Germany, Brazil and Japan have even formed a group named G4,** to support each other's bid for permanent seats.
- To oppose G4, a counter group has formed i.e. the **Uniting for Consensus group**, also referred to as **the Coffee Club comprising of Italy, Pakistan, Mexico and Egypt**, to oppose the permanent membership bid of G4, rather proposes expanding UNSC non-permanent membership from 10 to 20 members, and various changes to the workings of the Council.
- **Hence, option (b) is the correct answer.**

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